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Original Articles

PHAGOCYTOSIS AND OPSONINS.*

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INTRODUCTION.

Phagocytosis in its relations to healing and immunity has been discussed most actively from various points of view, and it is to some of the results of the most recent investigations in this field that I not without hesitation ask your attention.

The demonstration by Wright and Douglas[1] of the presence in blood and other fluids of certain substances called by them opsonins,[2] which render various bacteria susceptible to the phagocytic action of leucocytes, has given a fresh interest to the study of phagocytosis. At present we may accept as an established fact that phagocytosis of many bacterial and other cells by the leucocytes, in the first instance, is dependent on special substances, normal and immune, which become attached to the cells in question and in some manner so change them that they are taken up readily by polynuclear leucocytes *in vitro*. Leucocytes freed from serum do not take up to any great extent bacteria or red corpuscles suspended in salt solution. The quantitative effect of serum on phagocytosis is illustrated by Table 1.

TABLE 1.—QUANTITATIVE EFFECT OF SERUM ON PHAGOCYTOSIS.[3]

Quantity of serum.	Number of cocci taken up.
0.2 c.c.	23.4
0.1 c.c.	19.2
0.05 c.c.	14.0
0.025 c.c.	7.5
0.0125 c.c.	2.2
0.006 c.c.	1.5
0.003 c.c.	0.7
0,000 c.c.	0.0

This table shows the influence of serum on phagocytosis. In this experiment each tube contained 0.3 c.c. of suspension of washed guinea-pig leucocytes and falling quantities of guinea-pig serum, enough 0.85 per cent. NaCl solution being added to make 0.6 c.c. in each case, and 0.5 c.c. of a streptococcal suspension.

By means of experiments giving comparable results, it has been found that the variable factor in a series of bloods is the serum and not the leucocytes.[4]

Bacterial and other cells treated with opsonic serum and then freed from serum by repeated washing in salt solution are taken up by washed leucocytes. Indeed, all the opsonin may be removed from the serum by adding a sufficient number of suitable corpuscles or bacteria, as the case may be, which now become susceptible to phagocytosis. Bacteria and red corpuscles so treated may be said to be sensitized for phagocytosis or "opsonized," but such cells are not necessarily obviously altered either in form or function, and many bacteria, e. g., staphylococci, streptococci, pneumococci, anthrax bacilli, multiply freely in sera that contain opsonin. Leucocytes treated with opsonic serum and then washed, on the contrary, are not able to take up unsensitized bacteria or corpuscles. We see at once that a means has been given us for a better analysis than heretofore possible of the mechanism of phagocytosis, at least up to a certain point.

The technic required to study phagocytosis *in vitro* is quite simple.

Leishmann's method,[5] which is used in a modified form by the English workers, consists in placing blood or other fluid containing leucocytes and suitable homogenous bacterial suspensions at 37° C. (from 15 to 60 minutes) when smears are made and stained with Leishmann's stain. Counts are now made of the bacteria in a certain number of leucocytes and in this way is obtained the average number of bacteria taken up. In comparison of different bacterial emulsions these must contain an equal number of bacteria and Wright[6] has devised a method of counting bacteria and diluting as necessary for that purpose.

In order to free the leucocytes from serum it is necessary to wash small quantities of defibrinated or citrated blood or exudate at least three or four times in many times their volume of salt solution by means of centrifugalization. In our work at the Memorial Institute for Infectious Diseases it has been the experience that serum-free streptococci, staphylococci, pneumococci, typhoid bacilli, diphtheria bacilli and pseudo-diphtheria bacilli, meningococci and anthrax bacilli are not taken up to any appreciable extent by leucocytes so washed.

In case of anthrax bacilli, on account of the long threads, it sometimes may be difficult to determine whether a given leucocyte is or is not engaged in phagocytosis, but the difference in the relation of the leucocytes to the bacilli in smears from mixtures with and without serum is so striking that I am convinced of the dominant influence of the serum on phagocytosis of this organism also, Löhlein's[7] conclusions to the contrary notwithstanding.

While there can be no question of the essential rôle of substances in the serum in phagocytosis of the bacteria mentioned, as well as of others, there undoubtedly will be found bacteria that are taken up with almost equal readiness by washed leucocytes without and with serum. Thus Miss Tunnicliff finds that certain fusiform bacilli and spirilla are taken up with great readiness by carefully washed human leucocytes, and Dr. D. J. Davis concludes that this is probably also true of the influenza-like bacilli that occur in whooping cough and other conditions, because six typical strains of these bacilli, isolated from various sources, and grown on blood media free from opsonin, were taken up not only by leucocytes in serum, but also, though to a less degree, by washed leucocytes in salt solution. This is true for both human and dog leucocytes.

It is probable, too, that bacteria will be found, phago-

* The Middleton-Goldsmith lecture of the New York Pathological Society, given Feb. 23, 1906.

1. Proc. Royal Soc., 1903, vol. lxxii, p. 357; 1904, vol. lxxiii, p. 128.
2. From the Latin obsono or opsono, "I cater for, I prepare food for." The functions and nature of opsonins are discussed more in detail further on.
3. Hektoen and Ruediger; Jour. Infect. Dis., 1905, vol. ii, p. 128.
4. Wright and Douglas: loc. cit.; Bullock and Atkin: Proc. Royal Soc., 1905, vol. lxxiv, p. 380.
5. British Med. Jour., Jan. 11, 1902, vol. i, p. 73.
6. Lancet, 1902, vol. ii, p. 11.
7. Ann. de l'Inst. Pasteur, 1905, vol xix, p. 647.

cytosis of which by certain leucocytes, but not by others, requires the aid of serum.

I. THE OPSONINS IN THE SERA OF NORMAL ANIMALS.

The sera of the higher animals normally contain opsonin for many different bacteria. Thus normal human serum contains opsonin for stapylococci, streptococci, pneumococci (of feeble or medium virulence), meningococci, gonococci, influenza bacilli, diphtheria and pseudodiphtheria bacilli, anthrax bacilli, tubercle bacilli, typhoid and colon bacilli, the comma bacillus, the pest bacillus, and probably many other pathogenic and non-pathogenic bacteria. Whether this wide range of opsonic action is dependent wholly on a common opsonin or on several more or less specific opsonins has not been determined. Bulloch and Western[8] found that human serum contains different opsonins for tubercle bacillus and staphylococcus.

In the case of many bacteria strains of reduced virulence are highly sensitive to opsonic influences and the opsonin in the blood of one species may sensitize such bacteria for phagocytosis by washed leucocytes of different species (Hektoen and Ruediger, Bulloch and Atkin). In the case of bacterial strains of high virulence for a given animal, it seems, however, that neither homologous nor heterologous normal serum has the amount or kind of opsonin necessary to subject the organism in question to phagocytosis by the leucocytes of the susceptible animal. The relation of virulence to opsonification is a most interesting one that requires separate consideration.

The serum of normal animals may contain opsonins for other cells than bacteria. I have found that blastomycetes from human lesions become surrounded by masses of leucocytes in the presence of normal human and dog serum, whereas in the absence of serum the leucocytes do not seem to be attracted to the organisms. Preliminary observations indicate that phagocytosis of trypanosomes also is dependent on opsonification.

Barratt[9] noted the presence of opsonins in small amounts for erythrocytes in the serum of normal animals. In my own experiments I have observed that normal rabbit serum may contain substances that subject human and guinea-pig corpuscles to some phagocytosis by dog leucocytes; traces of analogous substances have been noted also in one or two other sera. Clearly the amount of erythrocytic opsonin in normal serum is quite minute and limited in its occurrence as compared with that of bacterio-opsonin.

II. IMMUNE OPSONINS.

Numerous illustrations may be cited of the faculty of the animal organism to react to the introduction of foreign cellular material by the production of special opsonins. It seems that the mechanism concerned is quite analogous to that involved in the formation of other and at present more familiar antibodies. Several years ago (1895) Denys and his co-workers observed that rabbit leucocytes in normal rabbit serum ingested the avirulent strain of a streptococcus, but not the strain made virulent by repeated passages through rabbits. In the serum of rabbits and horses immunized against this streptococcus, the leucocytes, on the contrary, had marked phagocytic power over the virulent cocci.[10] Others also noted the greatly increased phagocytosis of streptococci in the presence of antistreptococcus serum both *in vivo* and *in vitro*, notably Bordet, Aronson and v. Lingelsheim. Strictly analogous phenomena were described by Mennes,[11] in 1897, with respect to pneumococci, and later by others in regard to other bacteria.

Metchnikoff and his adherents ascribed the power of immune serum to cause phagocytosis of virulent bacteria to a special and direct stimulation of the leucocytes. Issaef,[13] as the result of an investigation inspired by Metchnikoff, concluded that antipneumococcic serum owed its protective action to so stimulating leucocytes that they destroyed pneumococci by phagocytosis. Later the same view was advanced by Bordet, Denys, Mesnil, Besredka and others in regard to the action of antistreptococcus serum, and the special substances concerned were sometimes designated as stimulines.

By others the function of immune serum in the promotion of phagocytosis was conceived to be exercised by a special fixator (*substance sensibilisatrice*) corresponding to Ehrlich's amboceptor or immune body, which by union either with the leucocytes or the microbes changed, so it was thought, the negative chemotaxis of virulent microbes with respect to leucocytes and other phagocytic cells. Savtchenko and Melkich[14] so explained the phagocytosis of the spirilla of recurrent fever in the serum of immune persons and Savtchenko[15] the phagocytosis of red corpuscles under the influence of immune serum.

Wright and Douglas[16] in 1904 noted a marked increase in the opsonic power of patients suffering with chronic staphylococcus infections of the skin (acne, sycosis, furunculosis), in response to the injection of 0.75 to 1 cc. of heated broth cultures of staphylococci. These investigators[17] also found the opsonic power of human serum with respect to tubercle bacilli greatly increased in consequence of minute doses of tuberculin, and Wright has developed on this basis a method of treatment of localized tuberculosis and other infections by vaccines prepared with the corresponding bacteria to which further consideration is given in the latter part of this article. Wright and Douglas were able to show that the newly formed immune opsonins, like normal opsonins, act on the bacteria and not directly on the leucocytes.

Apparently quite independently of Wright and Douglas' work Neufeld and Rimpau[18] found that leucocytes digested in antistreptococcus serum and then suspended in normal serum do not take up virulent streptococci, but that virulent streptococci, treated with antistreptococcus serum, then washed and mixed with leucocytes are taken up freely. Analogous observations were reported with reference to pneumococci. These authors conclude that active antistreptococcus and antipneumococcus sera owe their immunizing effect primarily to their power so to act on the respective virulent organisms as to subject them to phagocytosis, and that these and other similar sera consequently do not fall in the same group as the antitoxic nor as the bacteriolytic but constitute a distinct class.

A little later Neufeld and Töpfer[19] demonstrated that

8. Bulloch: The Lancet, 1905, vol. ii, p. 1603.
9. Proc. Royal Soc., 1905, 1905, vol. lxxiv, p. 524.
10. Summary of various researches on this and allied subjects is given by Denys in Centbl. f. Bakt., 1898, vol. xxiv, p. 685.
11. Zeitft. f. Hyg. u. Infektionskr., 1897, vol. xxv, p. 413.
13. Ann. de l'Inst. Pasteur, 1893, vol. vii, p. 260.
14. Ann. de l'Inst. Pasteur, 1901, vol. xv, 497.
15. Ibid., 1902, vol. xvi, p. 106. Levaditi (ibid., p. 233) and Gruber (Wien. klin. Woch., 1903, vol. xvi, p. 1097) reached similar conclusions.
16. Proc. Royal Soc., 1904, vol. lxxiv, p. 169.
17. Lancet, 1904, vol. ii, p. 1138.
18. Deutsch. med. Wochft., 1904, vol. xxx, p. 1358; also Zeitft. f. Hyg. u. Infekt., 1905, vol. li, p. 283.
19. Centbl. f. Bakt., part I, 1905, Orig., xxxviii, p. 456.

the blood of rabbits immunized with goat blood contains a substance that by acting on goat corpuscles renders them subject to phagocytosis by guinea-pig leucocytes.

Hence immune opsonins may be regarded as acting primarily on the bodies against which the animals have been immunized, as would be expected in accord with the fundamental idea of Ehrlich's theory, and not directly on the leucocytes.

It has been proposed by Neufeld and Rimpau to designate the substances in immune serum that render bacteria and corpuscles susceptible to phagocytosis as bacteriotropic and hemotropic substances. The term "tropic," however, has been applied to other antibodies as well. Wright and Douglas suggested the name opsonin in 1903, and in view of the priority of their suggestion as well as on account of the appropriateness and adaptability of the term, it, in my opinion, should be applied, as is rapidly coming to be the case, to opsonic substances that arise in consequence of immunization as well as to those present in normal animals. In accordance with the current usage in the case of agglutinins and other terms employed in immunology we may speak of opsonins for bacteria and for red corpuscles as bacteriopsonins and hemopsonins, respectively, normal and immune, as the case may be.

The following experiment is given by way of further illustration of the production of opsonins in response to injections of bacterial substances: A healthy man received under the skin of the arm two 24-hour blood-agar cultures of a virulent streptococcus (381 P.), suspended in salt solution and heated to 60 C. for 30 minutes. This was followed within six hours by a leucocytosis of 12,000, persisting for 48 hours, during which there was a slight fever, a little headache and loss of appetite. An erysipelatous flush spread over the skin about the injection and faded away gradually except over a small indurated area that eventually softened into a small abscess with sterile contents. Now this injection was followed by a fall, succeeded by a sharp rise in the opsonic power of the serum with respect to the streptococcus injected, as shown by the subjacent curve:

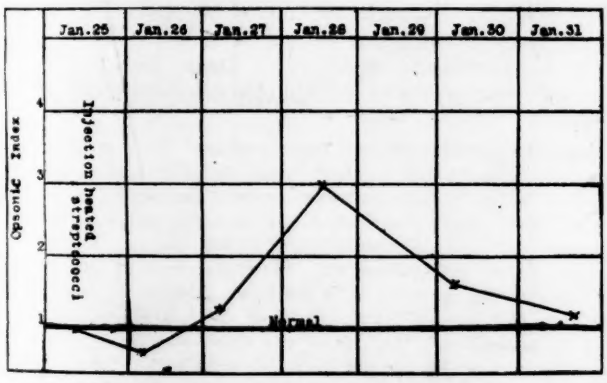

Chart showing increase of streptococco-opsonic index in a healthy man in response to injection of heated streptococci.

The train of events outlined in this instance[20] corresponds to the changes in the antibacterial powers of the blood shown by Wright to supervene on the inoculation of bacterial vaccines in general.[21] At first there was a fall in the opsonin—Wright's "negative phase"—followed by a marked rise, the "positive phase."

The presence of specific opsonin in the serum of immune animals is shown in Table 2 which I have taken from Miss Hamilton and Miss Horton's work on the pseudodiphtheria bacilli.

In this case the presence of specific opsonin is in full

20. Dr. Ruediger has immunized rabbits with the streptococcus used in this experiment, and as a result of several tests the serum of the immune rabbits have given an average opsonic index of 2.4.

21. Medico-chirurgical Transactions, 1905, vol. xxx; Lancet, 1905, vol. ii, p. 1598.

TABLE 2.—PHAGOCYTOSIS OF VARIOUS BACTERIA UNDER THE INFLUENCE OF THE SERUM OF NORMAL RABBITS AND OF RABBITS IMMUNIZED WITH SO-CALLED VIRULENT PSEUDODIPHTHERIA BACILLI.

Washed Corpuscles in NaCl sol., 0.25 c.c. Serum or NaCl sol. 0.25 c.c. Bacterial suspension 0.5 c.c.	Phagocytosis (Average in 40 Leucocytes).			
	NaCl Sol.	Homologous Serum.	Normal Rabbit Serum	Immune Rabbit Serum.
VIRULENT PSEUDODIPHTHERIA BACILLI:				
Guinea-pig leucocytes (blood)	0.1	1.5	1.5	
Goat leucocytes (blood)	0.1	1.9	1.5	5.5
Rabbit leucocytes (exudate)	1.8		6.0	9.5
Dog leucocytes (blood)	1.0	3.5	13.5	7.8
Human leucocytes (blood)	2.8	11.4	4.3	22.0
				20.7
AVIRULENT PSEUDODIPHTHERIA BACILLI.				
Human leucocytes (blood) + 20	0.1		5.0	4.4
Human leucocytes (blood) + 34	0.7		4.2	4.7
Human leucocytes (blood) + 27	0.		0.45	0.9
DIPHTHERIA BACILLI:				
Guinea-pig leucocytes (blood)	0.0	1.8	6.0	0.87
Goat leucocytes (blood)	0.0	4.4	2.3	3.0
Dog* leucocytes (blood)	9.9	4.0	40.0	40.0
Human leucocytes (blood)	1.4	7.8	4.0	2.7
Human* leucocytes (bl'd)	0.5	40.0	40.0	40.0

* Leucocytes so crowded with bacilli that no accurate count could be made.

harmony with the protective and curative powers of the immune serum which, however, is also specifically bactericidal.[22]

In accord with the results of experimental immunization we naturally expect increase in opsonin in consequence of certain spontaneous infections, especially of course as convalescence becomes established. The observations at hand indicate such to be the case although this matter has not been systematically investigated. I have referred to the pronounced phagocytosis of the spirilla of recurrent fever observed by Savtchenko and Melkich under the influence of the serum of convalescent patients. Dr. Ruediger[23] notes an increase in the streptococco-opsonic index of erysipelas serum, and in convalescent typhoids there is a well-marked increase in the opsonin for typhoid bacilli, the index in some cases reaching as high as 4. Careful measurements by Dr. Rosenow indicate, as his work now stands, that during the course of pneumonia up to and shortly after crisis there is probably no increase in the pneumococco-opsonic index. Systematic observations have not yet been made in convalescents from pneumonia, but last winter Dr. Ruediger and I noted a well-marked increase in certain cases with localized metapneumonic processes.

The lack of clinical evidence of marked active immunity after streptococcus and other infections of this class would seem to indicate that postinfectious opsonic increase is only of brief duration.

Reference has been made to the development of opsonins for red corpuscles on immunization with blood. The immune hemopsonins are of interest from various points of view especially because their study will help us to understand better the bacterio-opsonins.

Phagocytosis of red corpuscles *in vitro* may be studied in the following manner: The serum of an animal injected several

22. Park and Williams (Jour. Exp. Med., 1905, vol. vii, p. 403) noted a slight specific increase in phagocytic power *in vitro* in serum of sheep immunized against pneumococci. This increase, however, was not always in harmony with the protective power of the serum against pneumococcic infection of mice. Cler (Centbl. f. Bakt., part I, 1905, Orig., vol. xl, p. 241) has shown that Sclavo's antianthrax serum contains an opsonic substance for anthrax bacilli; he used washed guinea-pig corpuscles as phagocytes.

23. THE JOURNAL A. M. A., 1906, vol. xlvi, p. 108.

times with increasing quantities of alien blood is heated to 60° C. for 30 minutes in order to destroy the hemolytic complement present and prevent laking. A small quantity of this serum, e. g., .1 c.c., is mixed with, say, .2 c.c. of a 5 per cent. suspension of washed red corpuscles, and to this is added a quantity of washed leucocytes, obtainable from fresh aleuronat exudates, and the whole placed at 37° C. for 30 to 60 minutes or longer, when smears are made and stained. Smears from other mixtures, made in the same way, in which the equivalent amount of normal serum replaces the immune, are used for controls.

When the immune serum is active and the leucocytes well preserved many of them will be found packed with unchanged red corpuscles. Laking in the ordinary sense does not occur, but in a few hours the intraleucocytic corpuscles may swell up or coalesce to form large globules.

Barratt as well as Neufeld and Töpfer have shown that the opsonin is absorbed by the red corpuscles, which now remain susceptible of phagocytosis even after being washed. Leucocytes, on the other hand, are not stimulated to phagocytosis by direct treatment with the serum. I can corroborate this observation and also the fact that leucocytes of various species may be used as phagocytes so that one is not limited for this purpose to the leucocytes of the animal furnishing the serum.

The extent to which immune serum of this kind is specific in its hemopsonic powers has not been determined accurately. An immune serum may have a fairly wide range of activity in case dog leucocytes are used as phagocytes, and, on the other hand, may appear limited in a quite specific way when guinea-pig leucocytes are used as phagocytes. The opsonin just as the hemolytic amboceptor finds suitable receptors in other corpuscles than the particular kind used for immunization, but, so far as my experiments go, immune sera, as a general rule, have the most marked and the earliest opsonic effect on the corpuscles used for immunization; of course, there may be exceptions here.

In various infectious, toxic and anemic processes an extensive phagocytosis of red corpuscles and of other cells takes place in various parts of the body, especially in the spleen, the marrow, the lymph and hemolymph nodes. This process has been studied morphologically by Mallory[24] as it occurs in typhoid fever, and by Warthin[25] as it is seen in the hemolymph glands. Mallory has suggested that bacterial toxins stimulate the phagocytes so that they for a certain length of time acquire "malignant properties." Now the demonstration of erythrocytic opsonins naturally carries with it the suggestion that in certain diseased conditions, infectious and otherwise, substances are produced that render red corpuscles and other cells susceptible to phagocytosis by mobile cells in the same individual. It has been shown experimentally by Savtchenko[26] and others that if serum of a rabbit immunized with guinea-pig corpuscles be introduced into the abdominal cavity of guinea-pigs, then the red corpuscles are promptly taken up by their fellow leucocytes, especially those in the peritoneum and the spleen; Levaditi observed phagocytosis of red cells in the circulating blood also. Ruziczka (quoted by Gruber, loc. cit.) observed this phagocytosis *in vitro*. And Portis[27] found that in dogs injected with the serum of goats, immunized with dog thyroid material, there occurred an extensive phagocytosis of the red corpuscles by hyaline and endothelial cells. In the test tube, dog leucocytes and human lucocytes readily take up the corresponding red corpuscles if these have been influenced by an immune serum of the proper kind. Whether abnormal phagocytosis of red corpuscles occurs in the body of animals immunized with foreign blood has not been determined.

The agglutination of red corpuscles occasionally seen in the organs in typhoid fever and other diseases[28] is held to be the result of the action of hemagglutinins of bacterial origin. Indeed Pearce and Winne[29] were able to demonstrate the presence of hemagglutinins in cultures of typhoid bacilli. Hence it is not unreasonable to expect that hemopsonins also may be developed as the result of infections. Indeed, I have found recently that the serum of convalescents from various infectious diseases (typhoid fever especially, but also pneumonia and scarlet fever) may contain not only agglutinins, but also opsonins for human erythrocytes, which, when acted on by such serum, are subjected to phagocytosis by homologous leucocytes. This demonstration may serve in time to explain to some extent the anemia of many infections.*

III. THE EFFECT OF HEAT ON OPSONINS.

Many normal opsonins are destroyed or rendered inactive by heating at 54 to 60° C. for 30 minutes, some being more resistant than others. Thus normal human serum contains an opsonin for typhoid bacilli that resists heating above 60, and there is an opsonin for anthrax bacilli in the serum of white rats that resists heating to 70. Dean[30] holds that in heating sera to 60 only a fractional destruction of the opsonin occurs, and that on account of the brief time that the opsonin is allowed to act on the bacteria according to the original method of Wright and Douglas (15 minutes) only fairly high concentrations are indicated. On longer treatment of bacteria with serum heated even for a longer time, Dean obtained evidence of the persistence of considerable opsonin. Normal serum kept at about 2° C. may preserve its opsonins for several days, but at 37° C. they seem to deteriorate rapidly.[31] Dean, however, found normal horse serum to contain opsonin even after several years.

Immune opsonins appear more resistant to heat than the normal. Rimpau and Neufeld found that the opsonin in their immune antistreptococcus serum resisted heating to 59° C. for 30 minutes. Dean found that the bacteriopsonins in various immune sera are thermostable, resisting heating at 60° for several hours; he believes that the "fixateurs" of the French and the normal opsonins of Wright and Douglas in reality are identical in a general way with these thermostable substances, and he recommends the use of the word opsonin in order to designate the particular property indicated by it. On the other hand it is quite possible that normal and immune opsonin may not be wholly identical bodies but differ somewhat, as Landsteiner and Reich[32] conclude is the case with normal and immune hemagglutinins.

The specific opsonin present in the serum of rabbits and goats immunized against so-called virulent pseudodiphtheria bacilli is destroyed on heating at 70° C. for two hours.[33]

Leishmann and his associates[34] found that the serum of persons vaccinated against typhoid fever, after heating to 56° C.,

24. Jour. Exp. Med., 1898, vol. iii, p. 611, and 1900, vol. v, p. 1.
25. Trans. Chicago Path. Soc., 1903, vol. v, p. 151.
26. Ann. de l'Inst., Pasteur, 1902, vol. xvi, p. 107.
27. Jour. Infect. Dis., 1904, vol. i, p. 127.
28. Flexner, Jour. Med. Research, 1902, vol. iii, p. 316.
29. Am. Jour. Med. Sci., 1904, vol. cxviii, p. 668.
* Eason (Edin. Med. Jour., 1906, vol. xix N. S., p. 43) describes phagocytosis of red corpuscles under the influence of serum from patients with paroxysmal hemoglobinuria.
30. Proc. Royal Soc., S.B., 1905, vol. lxxvi, p. 506; also Centbl. f. Bakt., part I, 1905, Ref. vol. xxxvii, p. 349.
31: Horton: Trans. Chicago Path. Soc., 1905, vol. vi, p. 297.
32. Centbl. f. Bakt., part I, 1905, Orig., vol. xxxix, p. 712.
33. Hamilton and Horton: Jour. Infect. Dis., 1906, vol. iii, p. 128.
34. Jour. Hygeine, 1905, vol. v, p. 380.

still contains a substance that promotes phagocytosis of typhoid bacilli, and I have determined on several occasions that the serum of typhoid convalescents contains a typho-opsonin that is not completely destroyed on heating at 70° C. for 30 minutes.

Immune hemopsonins are also thermostable. Barratt found the opsonic power to be reduced by heating at 69, and destroyed after heating at 100° C. for 30 minutes. I have found that the hemopsonin in the serum of rabbits immunized with goat corpuscles persists to some extent after heating at 70° C. for one hour.

Efforts to determine something of the chemical nature of opsonic substances do not seem to have been made as yet.

IV. NON-SPECIFIC ANTIOPSONINS.

The production of specific antiopsonins does not seem to have received much attention as yet, but in mixtures of bacteria, leucocytes and normal serum phagocytosis may be diminished or inhibited by a number of different substances, such as solutions, isotonic with serum, of $CaCl_2$, $BaCl_2$, $SrCl_2$, $MgCl_2$ K_2SO_4, $NaHCO_3$, $Na_3H_5C_6O_7$, $Na_2C_2O_4$, $KFe(CN)_6$, formalin, lactic acid, chloroform, alcohol.

The question of how these substances hinder phagocytosis, whether by acting on the leucocytes, the bacteria or the serum, is an interesting one. The results of experiments by Dr. Ruediger and myself indicate that the substances mentioned act essentially on the opsonin which they prevent from acting on the bacteria. Lactic acid, for instance, in doses of from 0.003 to 0.0015 c.c. of a solution containing 77.14 per cent. of lactic acid ($C_3H_6O_3$) by weight prevents phagocytosis of anthrax bacilli and staphylococci by the leucocytes in 0.5 c.c. of defibrinated blood, human and dog. The antiphagocytic action of lactic acid is also illustrated in its neutralization of the anthracidal effect of normal dog blood as shown in Table 3.

TABLE 3.—THE SUSPENSION BY LACTIC ACID OF THE ANTHRACIDAL ACTION OF DOG BLOOD.

Defibrinated Dog Blood 0.5 c.c. + Lactic Acid + NaCl sol. to Make 1 c.c.	Number of Bacilli in Total Quantity.		
	At once.	3 hours.	6 hours.
Lactic acid .003	5880	0	0
Lactic acid .0015	5880	800	4270
Lactic acid .00075	5880	6370	3080
Lactic acid .000375	5880	600	88
NaCl only + blood	5880	548	22

That this effect of lactic acid is due to action on the opsonin is shown in this way: 0.2 c.c. of serum are mixed with 0.0015 c.c. lactic acid in 0.5 c.c. of NaCl solution and placed at 36° C. for one hour; anthrax bacilli are now added and the mixture returned to the incubator for 30 minutes, when the bacilli are washed twice and suspended in salt solution 0.5 c.c., to which are added washed leucocytes. The control mixtures are made in the same way except that the bacilli are treated with serum free from lactic acid. Counting the leucocytes in each case with reference to phagocytosis shows that the acid prevents the sensitization of the bacilli, and inasmuch as the treatment of the bacteria with lactic acid does not render them insensitive to the opsonic action of fresh normal serum, the action of the acid is primarily on the opsonin.

TABLE 4.—THE ANTIOPSONIC ACTION OF LACTIC ACID.

	Phagocytosis.	
	+	0
Bacilli sensitized in dog serum + lactic acid	0	50
Bacilli sensitized in dog serum + NaCl only	45	5
Bacilli sensitized in human serum + lactic acid	0	50
Bacilli sensitized in human serum + NaCl only	38	12

Neither lactic acid nor any of the other antiphagocytic substances employed in our earlier experiments has any appreciable detrimental effect, in the concentrations tested, on the phagocytic action of leucocytes[35] with respect to previously sensitized bacteria. It is probable, therefore, that certain so-called negatively chemotactic substances, of which lactic acid is a good example, owe their effect to neutralization or destruction of the opsonin. The diminution of resistance to various infections produced by lactic acid[36] and ascribed to its direct repulsion of phagocytes is therefore perhaps dependent primarily on its antiopsonic action.

Non-specific antiopsonins may be important factors in the establishment and spread of various infections. It is quite possible that substances with antiopsonic action arise in consequence of local and general metabolic disturbances. Perhaps it is in this direction that we should seek a better understanding of the so-called lessened vital resistance that we believe permits the development of the primary and secondary infections in which phagocytosis is an essential means of defense. It certainly would seem unwise in such infections to inject into the tissues and vessels agents that, like formalin, possess antiopsonic properties. Of course the condition of the leucocytes themselves must not be left wholly out of consideration inasmuch as it is possible that various agents may reduce not only the property to react to stimuli leading to phagocytosis but also their power to destroy the ingested microbes. Thus Ruediger noted that leucocytes from a case of acute nephritis were less effective in destroying streptococci than those from normal individuals. The decrease of resistance to certain experimental infections by antileucocytic serum[37] is of interest in connection with this question.

V. THE NATURE, STRUCTURE, AND FUNCTION OF OPSONINS.

Are opsonins distinct from other antibodies?—I do not propose at this time to discuss in detail the evidence in favor of the view that opsonins are distinct from lytic amboceptors and agglutinins.[38] The reasons why opsonic action of normal and immune serum are to be regarded for the present as connected with distinct bodies may be summarily stated as follows:

1. Normal serum may possess lytic power, but not opsonic, and *vice versa*.

2. Immunization may give rise to opsonic substances, but not to lytic or agglutinating.

3. Heat may destroy opsonic power, while the lytic amboceptors remain intact, and *vice versa*.

The Structure of Opsonins.—Opsonins like other antibodies occur in normal serum and are produced anew in response to immunization with suitable foreign cellular receptors or antigens. As in the case of other antibodies the production and structure of opsonins are explainable in the general terms of Ehrlich's lateral chain theory. They may be regarded as a product of the reaction of cells in the body to certain receptors or molecules ("opsogens") in bacteria, red corpuscles and possibly other cells for which they in turn have a special affinity. In the case of bacteria it would seem, as pointed out by Neufeld and Rimpau, that it concerns especially those receptors on which virulence depends. Like agglutinins and precipitins opsonins may be conceived

35. Probably true also of alcohol and chloroform in certain concentrations.

36. Himmel, for instance (Ann. de l'Inst. Pasteur, 1901, vol. xv, p. 928), produced an artificial susceptibility toward the bacillus of soft chancre by means of injection of lactic acid in a guinea-pig. Vaillard and Vincent observed that the addition of lactic acid to pyocyaneus culture in the proportion of 1 to 500 served to repel the leucocytes which otherwise crowd rapidly into the tubes filled with pyocyaneus cultures. Increasing the dilution to 1 to 1,000 leucocytes are no longer repelled. This has been confirmed by Massart and Bordet.

37. Ricketts: Trans. Chicago Path. Soc., 1903, vol. v, p. 173.

38. See Neufeld and Töpfer; Barratt: loc. cit.

to possess two molecular groups, a haptophore, whereby they attach themselves to corresponding receptors in bacteria and other cells, and a functional group which may be called the opsoniferous, whereby is effected in the cell to which they are attached some change, physical or chemical, that is necessary for phagocytosis. Whether it is possible to destroy or inactivate the opsoniferous group and thus to change an opsonin into an inactive opsonoid, comparable to the "oid" modifications of other antibodies, remains to be seen.[39]

The Opsonic Action.—We may regard a leucocyte as a drop of viscid fluid, largely colloid in nature, suspended in a medium in which it is nearly or quite insoluble. Within the drop the particles are subject to the same pressure from all sides, but at the surface the pressure is unequal because of the difference in the cohesion pressures of the two fluids, and as the result of the surface tension a delicate permeable membrane is formed.

The tangible reactions of motile cells like leucocytes to various stimuli are generally interpreted as results of changes of surface tension. When the surface tension is lessened at any part of a leucocyte the wall at this point bulges, and as the contents of the cell flow in here the whole cell moves toward the point of lessened tension. On the other hand, increase of tension at any one point causes bulging elsewhere and the result is that the whole cell tends to move away from the point of increased tension.

Now the stimuli that may cause these changes may come from within the cell and be the result of metabolic activities and chemical or physical in nature. They may give rise to spontaneous motion. Or stimuli may come from without and be chemical, electrical, thermal or mechanical in character. At present the external forces concerned in the motion of leucocytes are regarded as essentially chemical in nature and we speak of the manifestations of these forces as chemotaxis, the term applied by Pfeiffer in 1888 to the attraction that the malic acid in the female sperm cell exercises on the spermatozoids of certain ferns.

Phagocytosis is essentially ameboid motion, continuing until the object is enclosed within the phagocyte, or, in the case of large objects, partly so enclosed. Viewed in the light of the foregoing considerations, the action of opsonins may be defined in all brevity to consist in so changing bacteria and other cells that these by chemical or electrical (possibly also mechanical) means diminish the surface tension of leucocytes and thus bring about phagocytosis or, as stated in terms more familiar, substitute positive for negative chemotaxis.

Manifestly leucocytes from different species may react differently to the same stimulus. Thus the stimulus that lessens the surface tension of human leucocytes may have no such effect upon rabbit leucocytes. In this way one may explain the difference in the behavior of different leucocytes under similar circumstances.[40]

VI. THE INTRAPHAGOCYTIC DESTRUCTION OF BACTERIA.

The demonstration that normal and immune opsonins subject various bacteria to phagocytosis does not prove that these substances are of any importance in infections. It must be shown that the streptococci, pneumococci, and other micro-organisms are destroyed within or by the phagocytes, that phagocytosis is essential for the destruction of certain bacteria by the blood and other fluids of the body. Valuable information in regard to these points, especially as concerns human beings, may be obtained from test tube experiments.

Years ago Denys demonstrated that in mixtures of normal rabbit serum and leucocytes there was little or no destruction of virulent streptococci, but that when immune serum was substituted prompt phagocytosis with complete destruction of the streptococci took place. G. F. Ruediger has shown that in man also the leucocytes play a cardinal rôle in combating streptococcus infections.[41] The serum of normal human beings and of patients suffering from streptococcic infections has no streptococcidal effect, but constitutes a good medium for streptococci. Normal defibrinated human blood, however, has some streptococcidal action and blood from patients with acute infections and leucocytosis has much greater effect, and the higher the leucocyte count the more marked this effect. He shows, too, that the opsonin in the serum must be present in the mixtures of blood and streptococci in order that the latter may be destroyed by leucocytes. "There is no phagocytosis and hence no destruction of unsensitized cocci by washed leucocytes." These facts are shown in Table 5, taken from Dr. Ruediger's article.

TABLE 5.—STREPTOCOCCAL ACTION OF LEUCOCYTES.

Mixtures.	Colonies on Glucose Agar Plates.		
	Immed.	2 hours.	24 hours.
Washed corpuscles + serum	1,500	7	21
Washed corpuscles + heated serum	1,400	5,000	Many
Washed corpuscles + NaCl solution	1,700	3,500	Many
Serum	1,200	1,400	Many

The manner in which the body rids itself of pneumococci as pneumonia with its pneumococcemia passes the crisis is of great interest. Recent and as yet unpublished work by Dr. E. C. Rosenow in our laboratory indicates clearly that the pneumococci are destroyed by the leucocytes in co-operation with the opsonin in the serum. In their behavior toward normal and pneumonic serum and toward the leucocytes the pneumococci appear to resemble streptococci as shown in Table 6 which also brings into prominence the numerical influence of leucocytes.[42]

39. Dr. Ruediger and I believed that by heating opsonified bacteria to destroy the opsonic effect, but Bulloch and Atkin (*loc. cit.*) appear to have reached contrary results.

40. Human and dog leucocytes lose the power of phagocytosis of bacteria when heated to 45 C for 30 minutes. After heating at 42 C. there is still good phagocytosis. When mixtures of leucocytes heated at 45 C., with bacteria and normal serum are placed in a shaking machine and gently agitated for an hour or so, the smears commonly show a neat accumulation in more or less perfect circles of bacteria immediately around leucocytes. This interesting phenomenon was first observed by Dr. Rosenow in mixtures of pneumococci, heated human leucocytes and human serum, but is observable in other mixtures of the same general nature. Omitting the serum, heating the serum to 58 C., or heating the leucocytes to 50 C. eliminates in each case some factor or factors essential for the development of this perileucocytic arrangement. Vlassow and Sepp found that motility of leucocytes is increased at 40 C and that temperatures of 42 to 46 C. cause irregular and feeble movements. It is possible that the perileucocytic disposition of the bacteria about the leucocytes heated at 45 C. are the results of movements on the part of the heated cells toward sensitized bacteria, but it also would seem to be necessary to look for some mechanism that holds the bacteria together about the leucocytes. Under the circumstances there must be assumed to exist a mutual attraction between the bacteria and the cells.

41. THE JOURNAL A. M. A., 1905, vol. xliv, p. 198, and 1906, vol. xlvi, p. 108.

42. As regards staphylococci I have found that their destruction in human and dog blood is roughly proportionate to the number of leucocytes; that washed blood permits of multiplication and that the destructive action of serum alone falls short of that of defibrinated blood. Furthermore, normal serum heated to 58 C. for thirty minutes mixed with washed homologous leucocytes is a good medium for these bacteria. Hence it may be concluded that here also leucocytes and opsonin are essential for the greatest destructive effect of blood on staphylococci *in vitro*.

TABLE 6.—PNEUMOCOCCIDAL ACTION OF HUMAN LEUCOCYTES.

Mixtures.	Number of Leucocytes per c.mm.	Extent of Phagocytosis in 1 hour.	Number of Colonies on Plates.			
			At once.	1½ hrs.	10 hrs.	24 hrs.
Washed corpuscles, 0 5 + fresh serum 0.5	11000	30	1350	1000	18	200
Washed corpuscles, 0.5 + fresh serum 0.5	31000	10	1050	25	4	0
Washed corpuscles, 0.5 + fresh serum 0.5	50	?	1000	1450	∞	∞
Washed corpuscles, 0.5 + fresh serum 0.5	9500	0*	45	1200	5000	∞
Washed corpuscles, + NaCl sol. 0.5	5500	0	1450	1500	∞	∞
Washed corpuscles, 0.5 + serum heated to 60° C. for ½ hour 0.5	5500	8	1450	1200	1850	1600
Washed corpuscles, (heated to 60° C. for 30 min. 0.5 + fresh serum 0.5	11100	0	1250	1300	∞	∞
Fresh serum 1	.....	.....	480	800	1400	4500

(∞ stands for innumerable.)

* In this case a highly virulent pneumococcal strain, resistant to phagocytosis, was used.

It is generally accepted as extremely probable that the relative natural immunity of the dog to anthrax is due to phagocytosis. Virulent anthrax bacilli grow freely in normal dog serum and in suspensions of washed dog blood. They are destroyed, however, in defibrinated dog blood and the destruction is associated with marked phagocytosis, the bacilli within the phagocytes undergoing the well-known changes described by Metchnikoff in his early, classical experiments on phagocytosis. Destruction also takes place when normal serum is added to washed corpuscles and when bacilli, sensitized in normal serum, then washed, are added to the washed blood or leucocytic exudate. In serum-free mixtures the leucocytes remain scattered, while they gather in clumps about opsonized bacilli.

TABLE 7.—ANTHRACIDAL ACTION OF DOG BLOOD.

Mixtures; total quantity 1 c c.	No. of Bacilli in Total Quantity.		
	At once	2 hrs.	5 hrs.
Defibrinated blood 0.5 + NaCl sol. 0.5	3000	280	20
Washed blood 0.5 + NaCl sol. 0.5	3000	2750	∞
Washed blood 0.5 + normal serum 0 5	3000	181	114
Washed blood 0.5 + NaCl sol. 0.5 + sensitized bacilli.	3120	628	105
Washed blood 0.5 + NaCl sol. 0.5 + bacilli treated with serum heated at 60° C. 30 minutes.	980	1962	∞
Washed blood heated at 45° C. 0.5 + normal serum 0.5	3500	6475	∞
Dog serum 0.5 + NaCl sol. 0.5	3692	6590	∞
Serum 0.5 + NaCl sol. 0.5 + bacilli treated with normal serum	1600	3509	∞
Broth 0.5 + NaCl sol. 0.5	1692	11550	∞
Broth 0.5 + NaCl sol. 0.5 + bacilli treated with normal serum	3076	9860	∞

The essential rôle of the intraleucocytic destruction of the bacilli is well shown in plates made with decreasing quantities of blood, a fixed quantity of bacilli, the total quantity being kept at 1 c.c. in all cases by addition of normal dog serum. The destruction decreases as the leucocytes decrease in number.[43]

TABLE 8.—DIMINISHING DESTRUCTION OF ANTHRAX BACILLI WITH DECREASING QUANTITIES OF DOG CORPUSCLES (LEUCOCYTES) AND INCREASING QUANTITIES OF DOG SERUM.

Quantity made up to 1 c.c. by adding normal dog serum.	No. of bacilli in total quantity.		
	At once.	3 hours.	5 hours.
Defibrinated blood, 1 c.c.	1,400	0	0
Defibrinated blood, .75 c.c.	1,400	79	560
Defibrinated blood, .5 c.c.	1,400	89	700
Defibrinated blood, .25 c.c.	1,400	840	3,500
Defibrinated blood, .125 c.c.	1,400	1,750	4,650
Defibrinated blood, .062 c.c.	1,400	1,600	10,000+

43. Dr. Davis has observed that meningococci undergo rapid disintegration in the cytoplasm of the leucocytes (in serum) as shown by failure to stain.

The prompt and pronounced phagocytosis observed by numerous investigators of different bacteria in the peritoneal cavity in the presence of specific immune serum indicates that opsonins play an analogous rôle *in vivo* as *in vitro*, and we must conclude that in opsonins we have a new form of antibody that plays an essential part in the explanation of immunity to and healing of those infections that are caused by bacteria like streptococci, pneumococci, and staphylococci and others, the destruction of which is not at all or at least not readily accomplished by free lysins and in infections with which there is so pronounced a leucocytosis.

On the whole it seems to me that these recent studies of opsonins and phagocytosis place Metchnikoff's general theory, hitherto perhaps generalized too much, on a very substantial basis.

I shall not attempt to discuss in detail the manner in which the intraphagocytic destruction of certain bacteria takes place and shall leave untouched the question as to the part played by cytase and other bodies. It is interesting to note, however, that, on autolysis or extraction with water, washed dog leucocytes yield soluble, thermostable and filterable anthracidal substances. Whether human leucocytes contain similar substances remains to be determined. Neufeld and Rimpau were unable to extract streptococcidal or pneumococcidal substances from the washed leucocytes of rabbits and guinea-pigs.

Of course it does not necessarily follow that phagocytosis of bacteria is always synonymous with their destruction. The phagocyte may be killed by the toxic products of the bacteria taken up, which in the mean time perhaps have grown in virulence. In this case phagocytosis might be the means of spreading rather than limiting infection. Unquestionably agglutination renders easy the taking up of large numbers of bacteria, but the phagocytes may suffer the more in consequence of the concentration of toxic products. Undoubtedly the power of intraphagocytic destruction varies with respect to different bacteria.

VII. VIRULENCE AND RESISTANCE TO PHAGOCYTOSIS.

A fundamental tenet in Metchnikoff's doctrine of phagocytosis in infections teaches that as a microbe increases in virulence its resistance to phagocytosis increases. Experiments outside the body give results in full harmony with this view.

I have referred to the interesting observations by Denys on the insusceptibility of virulent streptococci to phagocytosis by rabbit leucocytes in normal rabbit serum. Dr. Ruediger and I have found that normal rabbit or guinea-pig serum has no appreciable effect on streptococci in a state of animal virulence (using rabbit, guinea-pig or human leucocytes as phagocytes), but when grown for from two to four weeks on glucose and other media the streptococci become readily susceptible to the opsonic action of the sera mentioned. It has been found also that those media best conserve virulence and resistance to phagocytosis that approach closest in composition to the natural fluids of the body, e. g. blood-agar, serum media.

With the aid of Miss Horton I have made analogous observations with the same general results as to anthrax bacillus and staphylococcus pyogenes. As the strain of anthrax bacillus increases in virulence on passage through guinea-pig to guinea-pig, it resists phagocytosis by guinea-pig leucocytes in guinea-pig serum more and more until it no longer is taken up. In a particular instance the bacillus now killed medium-sized guinea-pigs in doses of 0.00625 c.c. of a 24-hour broth culture. Similarly a strain of staphylococcus, whose virulence for rabbits was raised by successive inoculations soon became insusceptible to phagocytosis by rabbit leucocytes in

rabbit serum. A few days' growth outside the body, however, was sufficient to lower both virulence and resistance to opsonin.

The figures in Table 9 are not strictly comparable for the reason that the suspensions of the different strains, though made of as nearly the same bacterial content as possible, nevertheless may have varied considerably in respect to the actual number present in each. The differences in the degree of phagocytosis, however, are so marked as to leave no doubt of the close relation between virulence and resistance to opsonin.[44]

TABLE 9.—PHAGOCYTOSIS OF ATTENUATED AND VIRULENT BACTERIA.

Organism.	Leucocytes.	Serum.	Phagocytosis.	
			Attenuated Strain.	Virulent Strain.
Streptococcus B 104	Rabbit.....	Rabbit.....	10	0
Streptococcus B 104	Guinea-pig..	Guinea-pig..	16	4
Streptococcus B 104	Human..	Human.....	40	10.5
Streptococcus B 104	Human.....	Rabbit.....	10.5	0
Streptococcus B 104	Human.....	Guinea-pig..	40	0
Staphylococcus.....	Rabbit.....	Rabbit.....	36	0
Anthrax bacillus .	Guinea-pig..	Guinea-pig..	13	0
Pneumococcus* . .	Human.....	Human.....	33	0
Pneumococcus* . .	Human.....	Human.....	33	3.1

* When first isolated by Dr. Rosenow this pneumococcus was virulent for rabbits and was not taken up by human leucocytes. After cultivation for one month on plain agar it had lost its virulence and also its resistance to phagocytosis. After passage through seven rabbits its virulence was restored to some extent and also its resistance to phagocytosis.

It seems, then, that the relative susceptibility of various bacteria to phagocytosis under the influence of normal serum is a very accurate index of virulence of which practical and possibly prognostic use might be made.

The question of the manner in which the bacteria when virulent protect themselves from phagocytosis is of great interest. Marchand[45] reached the conclusion that the resistance of virulent streptococci to phagocytosis depended on the physical state of the cocci because neither living nor dead cocci were taken up and because there was no phagocytosis of virulent cocci freed by washing from all soluble products and placed in filtrates of the non-virulent strain, while non-virulent cocci placed in filtrates of the virulent were taken up freely. My own experiments also show that virulent organisms, freed from antiopsonic substances by washing, on being heated at 65° C. for 30 minutes, are not opsonified when treated with normal serum. Similar treatment of the avirulent strains has no effect on their phagocytability. Now virulent streptococci that are not rendered phagocytable for rabbit and guinea-pig leucocytes by normal serum (rabbit, guinea-pig, human) are taken up to some extent by human leucocytes after treatment with human serum. We know also that virulent cocci are subjected to phagocytosis under the influence of immune serum and, further, that immunization of animals with virulent cocci increases the opsonin in the serum. Consequently, the insusceptibility of virulent cocci to phagocytosis probably does not depend on any lack of suitable receptors or affinity for opsonin, but rather, it would seem, on an increased resistance to its peculiar action, namely, so to modify the cocci that they lower the surface tension of the leucocytes in their neighborhood and thus lead to phagocytosis. The chemical and physical factors, e. g., a possible capsule formation, that protect virulent bacteria against opsonification are subjects for further investigation.

So far as our observations have extended centrifugated culture fluids of virulent streptococci, staphylococci and anthrax bacilli reduce phagocytosis of the corresponding non-virulent strains, principally, I believe, through direct action on the leucocytes because the fluids in question have but a comparatively slight inhibitive or destructive effect on the opsonin in normal serum, but reduce greatly by one hour's contact the phagocytic power of leucocytes with respect to previously sensitized bacteria. In full harmony with this loss in phagocytic power are the marked functional and morphologic disturbances in the leucocytes placed in fluids containing the products of the growth of virulent bacteria. Thus, when leucocytes are placed in the culture fluids of a virulent streptococcus and examined from time to time on the warm stage, they are seen to lose ameboid movement and to swell greatly in from 30 to 60 minutes, whereas the leucocytes in control experiments remain normal in form and motion several times as long.

Dr. Ruediger[46] has shown that the filtrates of virulent streptococcus cultures may suspend the destruction of non-virulent streptococci by leucocytes.

According to Dr. Rosenow's observations suspensions of virulent pneumococci do not prevent phagocytosis of other bacteria, and he has not been able so far to secure any evidence of a pneumococcal leucotoxin.

In serum-broth cultures of rabbit-virulent streptococcus (streptococcus M. 1 and B. 104) Dr. Ruediger finds that leucocytes undergo marked morphologic changes after from one to one and a half hours at 37° C. There is no phagocytosis or very little; the cytoplasm appears more or less homogeneous with indistinct margins and the nuclei may swell up into large masses with irregular outlines; many cells appear indistinct, the nuclei only faintly stained, and disintegration seems to be taking place. These changes are still more profound after three hours in the incubator. They take place to about the same degree in the culture fluid from which most of the streptococci have been removed by centrifugalization, but not nearly to so marked a degree in Berkefeld filtrates. Heating the centrifugated fluid at 56 and 62° C. for 30 minutes does not destroy its leucocidal powers. In 24-hour cultures of a non-virulent streptococcus there is good phagocytosis and only a few cells show any changes. In control specimens from sterile ascites broth the cells appear quite normal with definite deeply stained nuclei. Changes occur also in guinea-pig leucocytes treated with centrifugates of broth cultures of virulent anthrax bacilli and in rabbit leucocytes treated with centrifugates of cultures of virulent staphylococci.[47]

In some of our experiments Dr. Ruediger and I have obtained evidence that the serum of animals immunized with virulent streptococci may neutralize the leucocidal and antiphagocytic actions of virulent streptococcus filtrates, but much further work is necessary to secure definite results of general value.

It would seem, then, that as certain bacteria under the influence of stimuli from the host increase in virulence they become better able to defend themselves against phagocytosis in at least two ways, namely, by producing

44. Dr. Rosenow finds that pneumococci which have been recently isolated from pneumonic patients, as well as those that are virulent for rabbits, as a rule are relatively resistant to phagocytosis in normal human serum. The rapidity with which virulence and resistance to phagocytosis are lost on artificial cultivation varies greatly, and both properties are best conserved in media containing blood. While difficult, yet Dr. Rosenow, by prompt reinoculation of organisms obtained from the blood during the life of inoculated rabbits, has been able to restore lost virulence and with it relative insusceptibility to phagocytosis.

45. Arch. de Med. exp., 1898, vol. x, p. 253.

46. THE JOURNAL A. M. A., 1905, vol. xliv, p. 198.

47. The leucotoxic power of staphylococci was first studied by van de Velde (La Cellule, vol. x; Ann. de l'Inst. Pasteur 1896, vol. x, p. 580), and by Denys and van de Velde (La Cellule, vol. xi), who showed that the leucocidin, as the particular substance concerned in leucocidal action is called, on immunization gives rise to a specific antileucocidin. The toxins produced by staphylococci have been studied also by Neisser and Wechsberg (Zeitschr. f. Hyg. u. Infektionskr., 1902, vol. xxxvi, p. 299).

substances that are harmful to the phagocytes and by an increased resistance to opsonification. Conversely we may think of the host as defending himself against certain infection by the production of opsonins and of antileucocidal substances.

VIII. GENERAL CONSIDERATIONS OF THE PRACTICAL AND THERAPEUTIC IMPORTANCE OF THE INVESTIGATIONS CONCERNING OPSONINS.

The Opsonic Value of Antistreptococcus Serum.—The usefulness of specific sera in the curative treatment of established streptococcemia and like diseases may be a limited one in so far as essential symptoms perhaps are due not solely to bacterial intoxication but in large measure to substances derived from abnormal changes in the constituent elements of the host. The fact, however, that in progressive infections of this kind there seems to be an unabated multiplication of bacteria in the blood and the tissues lend strong support to the view that the functional disturbances are dependent on the growth and activity of the bacteria.

If the conclusion already indicated be correct, namely, that certain virulent bacteria, so to speak, guard themselves against phagocytic destruction by means of substances that are harmful to the phagocytes and by resistance to opsonification, then one would expect potent antibacterial sera for organisms in this class to contain at least two kinds of substances, namely, antileucocidal substances and opsonic substances, powerful enough to subject the virulent strains to phagocytosis. Neufeld and Rimpau explain the action of their antistreptococcus and antipneumococcus sera as due to occupation of the bacterial receptors on which virulence depends and which give rise to the production of immune bodies.

At present the principal serum used in infections in the healing of which phagocytic immunity may be regarded as an essential phenomenon is antistreptococcus serum. Tests made a year ago by Dr. Ruediger and myself showed that the antistreptococcus sera then in general use in this country all possessed a lower opsonic index for various streptococci than normal horse serum, many samples being without any opsonic power presumably on account of their age. It would seem that a careful study of the streptococco-opsonic index of the different sera at different times might prove of interest for the purpose of determining not only the degree and duration but also the range of their opsonic activity with reference to different strains of streptococci of differing virulence, thus securing valuable indications of the content of specific antibodies in sera that have hitherto been insusceptible of adequate control.

Perhaps sera of increased opsonic potency might be obtained if opsonic receptors of virulent streptococci freed beforehand from other constituents of the bacterial cells could be used in the immunization of animals. The study of antistreptococcus sera with reference to antileucocidal, antistreptolytic and other antibodies may also yield valuable information. These remarks would seem to be equally applicable to antipneumococcus serum.

Considerations Relating to Leucocytosis.—The study of opsonins has given us a clearer conception of the relative importance of local and general leucocytosis. The use in the treatment of septic infections, so-called, of agents that increase the general leucocytosis (collargol, nucleinic acid, etc.) may be of benefit and quite rational if the increased leucocytosis be produced at times when the opsonic index is high and, further, if the agents used do not in themselves reduce or neutralize the opsonin.[48] In many of these conditions and in pneumonia, for instance, in which there is commonly a very high leucocytosis, it would seem that the opsonin is at fault as much as if not more than the leucocytes, and we need detailed investigations on this point.

The efforts of Mikulicz and others to enhance the resisting power of the peritoneum and of the body in general by the production of leucocytosis preliminary to abdominal operations associated with grave dangers of infection—"the summons of leucocytes as advance guards"—would seem to be a rational procedure in favor of which we have considerable experimental evidence. In this case also, care must be taken that the leucocytotic agents employed do not depress the opsonic index. The suggestion lies near at hand that the chances of the patient would be raised still further if the operation could be made during the positive phase of Wright, the period of increased bacteriotropic content of the blood, following inoculations with vaccines, properly dosed, of dead cultures of the bacteria most likely to cause infection, namely, streptococcus, colon bacillus, staphylococcus.

Considerations Concerning the Treatment of Various Local Infections.—There are various procedures employed, many of them more or less empirically, in the treatment of local infections, all of which serve in some way or other to increase the flow of blood and lymph through the area involved. Here belong hot applications of different kinds, rubefacients and irritants, massage, Bier's method of artificial hyperemia, the exposure to *x*-ray and radium, and also, in a measure at least, the Finsen treatment. Wright[49] has pointed out that the blind empirical use of some of these methods may not always be without danger when the blood possesses only inferior antibacterial power and that their effectiveness may be increased in various ways, but particularly when the antibacterial power of the blood, as measured by its opsonic index, is high either as a result of reactions to autoinoculations or to artificial inoculations of the proper bacterial vaccine. By the measurement of the opsonic index, then, valuable information may be obtained to guide in the treatment of local infections. Considering the practical impossibility in many cases of local tuberculosis of removing completely all infected tissue, it certainly would seem more desirable to undertake operation, if considered necessary, at a time when the tuberculo-opsonic index is high rather than when it is low and the general resistance of the patient to the bacilli that remain and may enter the opened lymph spaces consequently relatively reduced. The work of Wright and his followers on the antituberculo-opsonin in the blood of tuberculous patients also offers new points of view for the explanation of the healing of tuberculous peritonitis after laparotomy, long the subject of much discussion.

Brief Reference to the Therapeutic Inoculation of Vaccines.—Finally, I come to the most important practical part of this whole matter, namely, the value of the opsonic index in the successful treatment of infections, especially chronic and local and, above all, tuberculous, by means of the inoculation of bacterial vaccines, i. e., sterilized and standardized suspensions of bacterial cul-

48. Bulloch and Ledingham (Bulloch: Lancet, 1905, vol. ii, p. 1603) found that certain agents—"hetol," tallianine—increase the leucocytosis but not the opsonin content, while nuclein from yeast increases the opsonin (for what bacteria is not stated), and also the number of leucocytes, but the latter effect was inconstant.

49. Medico-Chirurgical Trans., 1905, vol. lxxxix.

tures. It is the merit of A. E. Wright, of London, who, since 1902, has been carrying out the underlying investigations to which I have referred so frequently, that this method of treatment has been placed on a firm and promising basis.[50]

According to Wright, many local infections persist, for the reason that the causative bacteria or their elements are not permitted to pass into the circulation in such numbers as to stimulate the machinery of immunization to form adequate quantities of antibodies at the proper time, and because the bacteria, in a measure, are protected from the action of such antibodies as may be present normally in the body or form in the course of the infection. Numerous tests by Bulloch and others show that in the tuberculous the tuberculo-opsonic index is subnormal. In lupus the average is 0.75 (Bulloch).

By measuring the resistance to the infective germ by comparison of the opsonic power of the patient's serum with that of the serum of normal persons, Wright and his followers have shown that in all infections there are times when the resistance of the patient is rising and times when it is falling. In the latter instance the repeated introduction of the corresponding bacterial vaccines serves to depress still further the opsonic index, i. e., to lower the patient's general resistance. The vaccines should be administered when the opsonic index is high—this is the fundamental principle of Wright's method—and by "properly adjusted and interspaced" doses; in other words, by controlling the effects by means of the opsonic index aim to maintain the antibacterial power of the blood at a high level. By numerous tests Wright has shown that in tuberculosis much smaller doses of new tuberculin than commonly employed give maximal immunizing responses without any constitutional disturbances. For this he employs new tuberculin in doses corresponding to from 1/1000 to 1/600 mg. tubercle powder.

As pointed out already, Wright, in addition to the use of "properly adjusted and interspaced" doses of vaccine in the treatment of local infections, especially tuberculous, also employs means to increase the flow of blood and lymph through the infected area in order to favor as much as possible the action of the antibodies on the bacteria.

This, briefly, is Wright's method of treatment of infections by inoculations of the corresponding vaccines. Remarkable results have been achieved in intractable cases of bone, lymph node and subcutaneous tuberculosis. The application of the general method to pulmonary tuberculosis, in which Lawson and Stewart[51] and others have shown that tuberculin when properly given also increases the tuberculo-opsonic index, promises well and it is hoped that Wright's treatment may be given a thorough trial.

50. For the references to Wright's publications on this subject see his address "On the General Principles of the Therapeutic Inoculations of Bacterial Vaccines as Applied to the Treatment of Tuberculous Infection," Medico-Chirurgical Transactions, 1905, vol. lxxxix, and Lancet, 1905, vol. ii, p. 1598. See also Bulloch, Practitioner, 1905, and Lancet, 1905, vol. ii, p. 1603.

51. Lancet, 1905, vol. ii, p. 1697.

Massage of Inflamed Tonsils.—Molinié of Marseilles is quoted by the *Gazette Méd. Belge* as having been very successful in treating tonsillitis by squeezing out of the tonsils the concretions and septic relics which keep up the trouble. He introduces his forefinger and compresses each tonsil in turn from below upward. The procedure makes the tonsil bleed a little, and this local bleeding also aids in the cure.

MALARIA IN THE TROPICS.*

WILLIAM C. GORGAS, M.D.

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ISTHMUS OF PANAMA.

Since 1898 I have served almost continuously in the tropics—four years in Cuba and two years at Panama—part of the time with troops, but most of this time being connected with municipal sanitation.

At Santiago, Cuba, I was with the army at the Base Hospital at Siboney, where all the seriously sick were sent during the entire campaign against Santiago until the army returned home.

In Havana I had charge of the yellow-fever wards at Las Animas Hospital. Las Animas was the hospital for contagious diseases for the Sanitary Department of Havana, and, while a large majority of the patients treated by me there had yellow fever, a considerable number of malarial cases were also received, being mistaken for yellow fever.

Here at Panama I am in charge of the yellow-fever ward. All non-immunes with fever from any cause coming into Ancon Hospital are sent to these wards, and much the larger proportion of these cases are malaria. We treat something like two hundred cases of malaria each month in these wards.

I give here my experience in some detail so as to indicate what my opportunities for observing malaria in the tropics have been. This experience has impressed on me the fact that malaria in the tropics is by far the most important disease to which tropical populations are subject, either military or civil. While the percentage of fatalities is not nearly so great as from some other tropical diseases, the amount of incapacity caused by malaria is very much greater than that due to all other diseases combined. I was very much impressed with this at Santiago. While we had more deaths from yellow fever and typhoid fever than from malaria, the latter was the disease that prostrated our splendid little army. About the beginning of August there were very few individuals that were not suffering from fever, and the army, as a whole, was scarcely able to move. The mental depression caused by this general sickness can hardly be appreciated by any one who did not see it, and against a fresh enemy of greatly inferior strength our army at that time would have been entirely helpless. This campaign was a good illustration of what might occur to an army operating in the tropics and subjected to unchecked malaria. I have not at hand the statistics to which I can refer concerning the mortality from malaria during this campaign, but my recollection is that it was not very fatal. I recollect very few cases of pernicious malaria or black-water fever.

In a tropical city like Havana, where I spent the four years succeeding the Santiago campaign, malaria was by no means so general as one would expect. The anopheles have very little opportunity of breeding about a city except in the suburbs, but even at Havana a greater number of persons died from malaria every year than from yellow fever. In Havana all our efforts and attention were given to the eradication of yellow fever, and very little emphasis was laid in our reports on the effect which the mosquito work had on malaria. This, however, was very marked. The average number of deaths reported in Havana from malaria for many years had been about 350; in 1901, our first year of mosquito

* Read at the Annual Meeting of the American Society of Tropical Medicine, in Philadelphia, March 24, 1906.

work, it was 151; in 1902, 77; in 1903, about 50, and it has remained since that date at about 40. I consider that for a city the size of Havana this means the practical extermination of the disease, as that number of cases in the ordinary course of events would be brought in from the outside, or be due to mistakes in diagnosis.

Panama, I suppose, is as favorable a place for the development of malaria as could be found. The towns of Colon and Panama, at the termini of the canal, are not large enough to do away with the breeding of anopheles; that is, anopheles breeding in the suburbs can very well travel to the centers of these towns, and the population living along the canal in little villages a mile or two apart, between Colon and Panama, are ideally situated for the development of malaria. About one-third of the canal runs through a low alluvial and marshy plain, and the other two-thirds pass through a hilly and mountainous country. Along the banks of the little rivulets, which run in every direction, the anopheles breed just about as well as in the marshy level country, and the very general infection of the population by malaria causes most of the anopheles near human habitations to become infected.

We knew from the experience of our predecessors on the Isthmus that malaria would be our greatest trouble, and we did what we could toward correcting the conditions. Our greatest endeavor has been toward draining the localities near all towns and dwellings, so as to make the ground as dry as possible, and in order to leave as few breeding places as possible for the mosquitoes. In places that could not be drained, oil was used very freely.

With a large body of laborers such as we have here, I think an equally important measure is the giving of prophylactic doses of quinin. We also screened as many of the houses as possible and influenced all inhabitants to use mosquito-bars. These measures followed up persistently have had a great effect in reducing the malaria.

With a force of 22,000 men on the pay rolls during February, we had only twenty-two per thousand incapacitated every day on account of sickness. As I said before, fully three-fourths of this sickness was due to malaria, but the total would not be a large sick rate in a healthy locality in the United States. In my wards at Ancon I have personally treated 1,055 cases of malaria in the last six months. In each of these cases a blood examination was made and the character of parasite recorded. The estivo-autumnal variety largely predominated, but the attacks in general were mild and yielded easily to treatment. Among these 1,055 cases we have had only five deaths. So far as personal care for malarial fever is concerned, I believe that the most important thing the individual can do is to take a small dose of quinin daily. While this will not always prevent attacks, in a given body of men it will enormously reduce the number, and I think will prevent a severe type of the disease when it comes. The good results we have had in hemoglobinuric fever have surprised me most. In these wards we have had twenty cases of hemoglobinuric fever in the past eight months, and of these we have lost three.

The treatment has been the persistent use of quinin as soon as we could get hold of the patient. For the first three or four days the quinin is given hypodermically, but as soon as the patient ceases to vomit it is given by mouth; twenty grains in the twenty-four hours hypodermically and thirty by mouth has been the ordinary course. I have seen no evil results that could fairly be attributed to the administration of quinin, and I have often wondered if it could be the same disease which the English have on the west coast of Africa and in which so many of their leading practitioners think that quinin does harm.

The malaria we have here at present among the whites seems to me about as grave, and no graver, than the malaria which I treated in the garrisons along the gulf coast in the United States.

I look forward very hopefully to a diminution in the prevalence of malaria down here. It seems to me that by the continuance of our present measures we ought still further to decrease malaria. Year by year the ditching will decrease the number of anopheles near the habitations along the Canal Zone, and the treatment of the patients in hospital and the constant giving of prophylactic quinin will decrease the number of people who are liable to spread the infection, and I believe that these two forces will act and react as time goes on. Our conditions have been as trying in the past year as they are likely to be. We have had a larger force of men than the French had. The population was very generally infected with malaria, and the ditching and draining had just been completed. All these conditions ought to improve steadily as time goes on, and it seems to me a perfectly rational hope that malaria will decrease in the same ratio. Even if we can not decrease malaria below what it is at present, we will have succeeded in building the canal with no greater number of days lost from disease than if we were building it at home. I hope to do better than this.

A COMPARISON OF THE PHARMACOLOGIC ACTIVITY OF THE FLUID EXTRACT OF SQUILL PREPARED ACCORDING TO THE UNITED STATES PHARMACOPEIA 1890 AND 1900.

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Quite a number of more or less important changes in the method of making some of our important standard pharmaceutical preparations have been introduced in the new eighth edition of the United States Pharmacopeia. One of the most radical of these changes is the substitution of acetic acid (10 per cent. absolute acid) in place of alcohol (95 per cent.) as the menstruum for making fluid extract of squill. During the past eight years it has been my privilege to examine personally, or to check the results obtained by an assistant, many samples representing thousands of pounds of fluid extract of squill and other heart tonics for physiologic activity. The method of assay has been substantially that given in an article published in THE JOURNAL[1] for making quantitative pharmacological assays of the heart tonics.[2] For the sake of clearness it may be explained that the strength of the given preparation is determined by a comparison of the minimum fatal dose per gram body weight of frog of the unknown and the known standard, the minimum fatal dose of each being determined at the same time by injecting the properly diluted preparations into the abdominal lymph sacs of frogs of the same size and species and kept under the same conditions. The standard adopted for squill

1. THE JOURNAL A. M. A., Oct. 22, 1898.
2. Further details of this method of assay will be found in the 1905 edition of the National Dispensatory, page 1728.

has been a fluid extract prepared according to the seventh edition of the United States Pharmacopeia from first-class drug, and possesses the average physiologic activity of several fluid extracts produced from different lots of drug, made by the same formula.

Records for the past two years show that the strength of fluid extract of squill (U. S. P., 1890), as it is obtained from the manufacturer, fluctuates between 30 and 140 per cent. of the standard. Usually the activity of the percolate has been found to approximate the strength of the standard within 10 per cent., in this respect being much more uniform in activity than similar preparations of digitalis, which have been found to fluctuate between 50 and 300 per cent. standard.

Immediately after the issuance of the eighth edition of the United States Pharmacopeia, a commercial lot of fluid extract of squill was made according to the new formula which differs so radically from that previously employed. Some difficulty was experienced in making the percolate, and the final product when physiologically assayed was found to possess about 30 per cent. of the activity of the standard. At first it was thought that the drug was not completely exhausted and repercolation was resorted to, but subsequent tests showed that the physiologic action of the second percolate was not materially more active than the first (Table 1).

TABLE 1.—FLUID EXTRACTUM SCILLAE, UNITED STATES PHARMACOPEIA, 1900. PERCOLATED AND TESTED OCTOBER, 1905.

Cage.	No.	Weight.	Dose per gm.	Result.
		STRENGTH OF UNKNOWN.		
6	1	29 gms.	.0016	Lived.
6	2	27 gms.	.0018	Lived.
6	3	32 gms.	.0020	Lived.
6	4	22 gms.	.0024	Lived.
6	5	24 gms.	.0028	Lived.
7	1	28 gms.	.0035	Lived.
7	2	30 gms.	.0040	Lived.
7	3	25 gms.	.0045	Lived.
7	3	25 gms.	.0045	Lived.
7	4	26 gms.	.0050	Died.
7	5	31 gms.	.0055	Lived.
8	1	31 gms.	.0045	Lived.
8	2	25 gms.	.0050	Lived.
8	3	35 gms.	.0055	Died.
8	4	31 gms.	.0060	Died.
8	5	32 gms.	.0065	Died.
		STRENGTH OF STANDARD.		
4	1	23 gms.	.0010	Lived.
4	2	25 gms.	.0012	Lived.
4	3	26 gms.	.0014	Lived.
4	4	23 gms.	.0016	Died.
4	5	28 gms.	.0018	Died.
5	1	23 gms.	.0012	Lived.
5	2	25 gms.	.0012	Lived.
5	3	28 gms.	.0014	Died.
5	4	22 gms.	.0015	Died.
5	5	27 gms.	.0016	Died.

Table 1.—Minimum fatal dose of standard .0015; minimum fatal dose of fluid extract being assayed between .005 anl .0055. The dose was not closely determined as the product was much below strength, and it was deemed advisable to fortify it by continuing percolation.

It seemed desirable as a check to examine the product of several reputable firms. Accordingly there was obtained on the open market the fluid extract of squill from three different houses made according to the new and the old formulæ. These were assayed as above, except that the end results were checked more closely (Table 2).

The names of these manufacturers are not given for obvious reasons, being designated simply by the letters A, B and C.

TABLE 2.—COMPARATIVE STRENGTH OF FLUID EXTRACT OF SQUILL BOUGHT ON THE OPEN MARKET.

	U. S. P., 1890. Menstruum 95 per cent. alcohol.	U. S. P., 1900. Menstruum about 10 per cent. acetic acid by weight.
A	26 p. c. as active as standard.	44 p. c. as active as standard.
B	100 p. c. as active as standard.	33 p. c. as active as standard.
C	135 p. c. as active as standard.	50 p. c. as active as standard.

Sample A, United States Pharmacopeia, 1890, for some reason, probably owing to poor drug or imperfect extraction, is the least active alcoholic fluid extract of squill that has ever come to my attention. It is of therapeutic interest likewise to note the great variation in the activity of both the 1890 and 1900 preparations.

In order to be more certain of the results obtained from the use of the menstrua, four experimental lots of fluid extract of squill were made, two according to the United States Pharmacopeia, 1890, and two according to the United States Pharmacopeia, 1900, all from the same drug, extreme care being taken that the directions given be followed exactly so far as possible. No special difficulty was experienced in employing the alcoholic menstruum, but in the case of the acetic acid, after repeated trials, it was found absolutely impossible to percolate the drug according to the directions given, suction being finally resorted to in order completely to exhaust the drug (Table 3).

TABLE 3.—COMPARATIVE STRENGTH OF FLUID EXTRACT OF SQUILL PREPARED FROM THE SAME LOT OF DRUG ACCORDING TO THE UNITED STATES PHARMACOPEIA OF 1890 AND 1900.

1, U. S. P. 1890, 140 per cent. as active as standard fluid extract.
2, U. S. P. 1890, 140 per cent. as active as standard fluid extract.
3, U. S. P. 1900, 60 per cent. as active as standard fluid extract.
4, U. S. P. 1900, 60 per cent. as active as standard fluid extract.

It may be observed that activity of both products is high as compared with the results given in Table 2. This probably is due to the great care exercised completely to exhaust the drug and to the high quality of the drug.

In order to meet any objections that might be offered against the results as shown by the special method of assay employed, the work was checked by experiments on dogs showing the comparative activity of the two products in producing changes in the blood pressure, which is perhaps the most characteristic physiologic action of the members of the digitalis series (Tables 4 and 5 and Figs. 1 and 2).

Experiment No. 8, Nov. 22, 1905 (Charts 1 and 2).

Dog, weighing 14 kilos, was anesthetized with chloretone and morphin. A manometer tube was connected with the right carotid; the time-marker recorded seconds.

At 10:45 a. m. the pulse rate was 100, blood pressure 46 mm., mercury, respiration 8.5 a minute. At 10:45.5 a. m., 0.3 c.c. of fluid extract of squill (U. S. P., 1890), diluted to 5 c.c. with physiologic salt solution, was slowly injected into the femoral vein.

At 10:46.5 a. m. pulse rate was 102 blood pressure 54 mm., mercury, respiration 8.

At 10:51.5 a. m. pulse rate was 96, blood pressure 55mm., mercury, respiration 7. The dog was kept quietly in place on the table until 2:40 p. m., when the experiment was repeated.

At 2:40 p. m. pulse rate was 116, blood pressure 48 mm., mercury, respiration 5.5 a minute.

At 2:41 p. m. 0.3 c.c. of fluid extract of squill (U. S. P., 1900), diluted to 5 c.c. with physiologic salt solution, were injected into the femoral vein.

At 2:41.5 p. m. pulse rate was 124, blood pressure 50 mm., mercury, respiration 8.

At 2:46.5 p. m. pulse rate was 138, blood pressure 45 mm., mercury, and respiration 11.

In this experiment particular notice should be given to the tracing (Fig. 1), which shows more strongly than words that the 1900 preparation produces very slight digitalis action. It may be objected that this animal was kept on the table until it was exhausted before the second part of the experiment was continued. Table 5 gives similar results, but is not open to this objection, as the animal received an injection of the 1900 product when first put on the table.

Experiment No. 10, Nov. 23, 1905 (Charts 3 and 4).

Dog, weighing 12 kilos, was anesthetized with chloretone and

morphin; a canula was inserted in the right carotid; no attention was paid to respiration.

At 8:46 a. m. pulse rate was 102, blood pressure 47 mm., mercury.

At 8:46.5 a. m. 0.3 c.c. of the fluid extract of squill (U. S. P., 1900), diluted to 5 c.c. with normal salt solution, were injected into the femoral vein. It at once produced a transient fluctuating rise in blood pressure, which subsided very quickly to normal.

At 8:48 a. m. pulse rate was 104, blood pressure 46 mm., mercury.

At 9:15 a. m. pulse rate was 98, blood pressure still 46 mm.

At 9:20 a. m. pulse rate and blood pressure were the same as at 9:15. Fluid extract of squill (U. S. P., 1900), 0.3 c.c., was injected as before.

At 9:22 a. m. pulse rate was 100, blood pressure 52 mm., mercury.

At 9:27 a. m. pulse was 94, blood pressure 50 mm., mercury.

Pulse rate 100
Blood pressure 46 mm.
Respiration 8.5 a minute.
10:45 a. m.

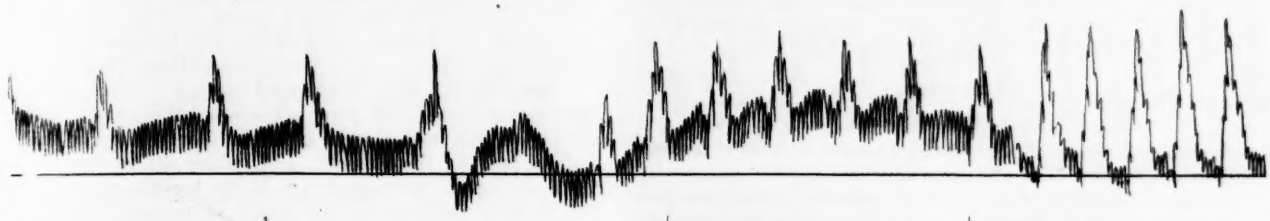
Seconds

Finished injection into femoral vein .3 c.c. Fluidextractum Scillæ (U. S. P.,1890) diluted to 5 c.c. with physiologic Saline solution. Injected very slowly. 10:45½ a.m.

Pulse rate 102
Blood pressure 51 mm.
Respiration 8 a minute.
10:46:5 a.m.

Pulse rate 96.
Blood pressure 55 mm.
Respiration 7 a minute.
10:5:15 a. m.

CHART 1. Experiment No. 8. Nov. 22, 1905. Dog—wt., 14 kilos. Anesthetic chloretone and morphin.



Pulse rate 116
Blood pressure 48 m.m.
Respiration 5.5 a minute.
2:40 p. m.

Seconds.

0.3 c.c. Fluidextractum Scillæ (U. S.P., 1900) diluted as in Chart 1. 2:40 p.m.

Pulse rate 124
Blood pressure 50 mm.
Respiration 8+ a minute.
2:41 p. m.

Pulse rate 138
Blood pressure 45 mm.
Respiration 11 a minute.
2:46.5 p.m.

CHART 2.—Same dog as in Chart 1.

Normal tracing carotid

Canula in right carotid.

Pulse rate 102.
Blood pressure 47 m.m.
8:46 a.m.

Seconds.

Finished injecting 0.3 c.c. Fluid extractum Scillæ (U. S. P., 1900) diluted to 5 c.c. with physiologic saline solution in femoral vein. 8:46.5 a.m.

Pulse rate 104.
Blood pressure 46 mm.
8:48 a.m.

Pulse rate 98.
Blood pressure 46 mm.
9:15 a.m.

CHART 3.—Experiment No. 10. Nov. 23, 1905. Dog—wt. 12 kilos. Anesthetic, chloretone and morphin.

Pulse rate 98.
Blood pressure 46 m.m.
9:20 a.m.

Seconds.

Finished injecting 0.3 c.c. Fluidextractum scillæ (U. S. P., 1890) diluted to 5 c. c. with physiologic saline solution.

Pulse rate 100.
Blood pressure 52 m.m.
9:22 a.m.

Pulse rate 94.
Blood pressure 50 m.m.
9:27 a.m.

CHART 4.—Same dog as in Chart 3.

CONCLUSIONS

From these results we may conclude that acetic acid is not so satisfactory a menstruum as alcohol for making a fluid extract of squill. The therapeutic results obtained from the use of fluid extract of squill (United States Pharmacopeia, 1900.) will be variable and considerably less than would be expected from the use of the 1890 preparation. It would seem desirable that physicians in prescribing squill should indicate that they desire the preparation of the United States Pharmacopeia, 1890, when they wish to obtain the usual therapeutic action of squill.

130 Longfellow Avenue.

A CASE OF HEMORRHAGE FROM THE STOMACH, DUE TO CIRRHOSIS OF THE LIVER, IN WHICH GASTROENTEROSTOMY WAS DONE ON THE SUPPOSITION THAT THERE WAS GASTRIC OR DUODENAL ULCER.*

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PHILADELPHIA.

NARRATIVE OF CASE.

Patient.—A man of 40 years of age, of rather medium height and weight, family history negative.

Previous History.—There was no tendency to tuberculous or other constitutional disease, and he had never had syphilis. He had always enjoyed good health, was a steady, hard worker in an office where he had large business responsibilities, and he took unusually good care of his health. He lived in the country, where he walked, and rode a bicycle. He ate plain food and never touched liquor or tobacco. About thirteen years previously he had had a severe attack of typhoid fever with very high temperature, but from this he made a complete recovery. His wife said that he had never been ill, and had never taken any medicine beyond an occasional dose of calomel for his liver, which at times had been torpid. He was a dark brunette with rather sallow skin, but his three children have about the same color and appearance.

History of Present Illness.—During the past summer he had great anxieties and business cares involving much additional care and responsibility, and for this reason, he told me, he had been particularly careful of his own health, lived on the simplest kind of food, had special bottled milk brought to his office which he drank between meals, as a precaution against letting his health run down. He could not recollect having had the slightest indigestion or any symptoms referable to his stomach.

Hemorrhage.—On Sept. 21 he reached his home in the country at 10:30 p. m., having been hard at work in his office in the city until late, and went out to the toilet in the yard. He strained quite hard at stool and then came in through the kitchen, which had been closed up and was very hot. He felt nauseated, picked up a basin, and vomited a large amount of blood, which, by actual measurement, was a quart and a pint.

Treatment.—His wife, hearing him come into the house but not in from the kitchen, went to look for him, and got to him just at the end of the vomiting attack. He was so weak that she put him down flat on the kitchen floor, and his pulse disappeared entirely from the wrist. His wife, who is a physician, gave him strychnin and ergot hypodermically. His little daughter had been ill with typhoid fever and there was in the house and ready a sterile salt solution with apparatus for intracellular infusion. This his wife got at once and pumped into him one quart of the solution, aided by a trained nurse who was in the house, and then she summoned other assistance. Undoubtedly the man would have died from the loss of blood if this plan of treatment had not been instituted so promptly. Some of the saline solution was also injected into the bowel, and after its use brownish-red blood came away.

Subsequent History.—Conditions improved, and in about two hours he was lifted by two men and carried into the next room and laid flat on his back on a mattress on the floor. In less than half an hour he had another severe hemorrhage from the stomach, vomiting without effort one quart and half a pint of blood. His collapse was most profound, and Dr. T. Branson, who had been hastily summoned, and Dr. McCollin gave him strychnin and ergot hypodermically, and thirty drops of adrenalin (repeated in an hour) was given by the mouth. Morphin was also administered. His condition was so bad and his weakness so profound that they could not remove his outer clothing, and he was kept flat on the floor for five days. He was seen at this time also by Dr. Musser, who agreed in the diagnosis of ulcer and advised that a gastroenterostomy be done. This was also urged by Dr. Branson, but Dr. John H. Gibbons, who saw him at the same time, was opposed to immediate operation.

At the end of five days the man was taken to the Bryn Mawr Hospital and kept under observation for two weeks. Nothing whatever was given him by the mouth and he was nourished entirely by the rectum. The bowel was irrigated daily with normal salt solution, and tarry evacuations persisted until about the twelfth day. Peptonized broth and other peptonized preparations were given every six hours. Malted milk enemata were tried, but were always expelled. For two weeks the man had no food by the stomach, and, while the rectum retained the nourishment introduced into it, he became cross, irritable and slightly delirious as the result of extreme hunger. He was taken back to his home on October 7, where I saw him for the first time on October 9.

On this date an enema was given, and after some straining he complained of distress and gas in the stomach and bowel. On inserting a rectal tube to carry off the gas the end became covered with tarry material and on irrigation more was found. No food was given by the mouth for twenty-four hours. The irrigations were dark-colored for five days.

The patient reacted well from this setback, but the anemia was much more marked. With cautious use of food by the mouth and rectal feeding his general condition improved very much and his color showed he was making blood fast.

On the morning of October 15 he awakened his wife, who was lying asleep on the foot of his bed, to tell her that he felt very uncomfortable in his stomach—he had a feeling of distension and nausea. Almost immediately he vomited a considerable quantity of blood, and during the day he passed tarry material from the bowel. This day he was brought in an ambulance to the city, where, after his arrival, he again vomited a little blood and had black, tarry stools.

Consultation.—Dr. M. J. Lewis saw him with Dr. McCollin and me in consultation. He was extremely pale, showing evidences of internal hemorrhage, although his pulse was fairly good. He had edema of the feet and fluid in the abdomen; but this we thought to be confined to the large bowel and was probably a collection of fluid blood. The heart's action, considering the profound anemia, was good. The kidneys were acting well and the spleen and liver did not seem to be altered in size from the normal. His temperature was slightly above normal. He had vomited some little blood the day before, and had passed, and was passing, dark, tarry material from the bowel. His condition was so extremely grave that we deemed it best to wait, if possible, for a few days before deciding on operation, to enable him to regain the ground lost from this additional hemorrhage. He was given adrenalin chlorid, strychnin and nourishment by the bowel.

Examination of Blood and Urine.—On this date the following examinations were made of the urine and blood:

Urine: Light amber, clear, no sediment, acid reaction: sp.

* Read before the College fo Physicians of Philadelphia, Feb. 7, 1906.

gr., 1023; no albumin; no sugar; centrifugated specimen contained only a few leucocytes.

Blood:

	Per cent.
Polymorphonuclear	58
Small erythrocytes	32
Large erythrocytes	4
Transitional	4
Basophiles	2
	100

Macrocytes and microcytes present.
Hemoglobin, 45 per cent.
Coagulation time, 3 1/3 minutes.
Microscopic:
Leucocytes, 2,400.
Erythrocytes, 1,280,000.
No malarial organisms.
Widal, negative.

Course of Disease.—The next day his general condition had decidedly improved. There had been no more vomiting of blood and no bloody stools. He did not appear so completely exsanguinated, althougn still very pale, and on October 19 Dr. Lewis again saw him with me in consultation, when we found his color better. He had also gained in strength, but there was still some general edema. For twenty-four hours he had taken some Valentine's meat juice by the mouth in addition to the rectal feeding.[1] There was little or no change in the physical condition since the last consultation, two days before, and not quite so much liquid in the ascending and transverse colon.

Operation.—Dr. Lewis again saw him with me early, October 21, and his condition had improved so much that we decided on immediate operation, and for this purpose he was taken to the Orthopedic Hospital and carried directly into the operating room. His condition was such that it was not deemed advisable even to take him in the elevator upstairs to a bedroom. Ether was given him by Dr. George W. Spencer, and the skin of the abdomen was shaved and prepared after he was on the operating table.

An incision was made through the right rectus muscle, and as soon as the peritoneum was opened there gushed out a large quantity of perfectly clear, straw-colored fluid. This escape of fluid was so marked that every one present who saw it immediately thought of the possibility of malignant disease and spoke of the necessity of a more careful examination of the abdominal cavity than a simple operation for gastric ulcer would ordinarily require. It was almost impossible to relax the belly wall without danger to his life from the anesthetic.

The vessels of the stomach and omentum were much engorged and resembled a colored diagram of an injected subject. The stomach was examined over its anterior surface, but no ulcer or induration could be detected. It was not dilated; indeed, it was smaller than normal. On the anterior or free border of the duodenum, about one and a half inches from the pylorus, was found a thickening of the gut wall about three quarters of an inch in its longest diameter, almond-shaped, not circular, and much unlike the surrounding surface. It was distinct in outline, but not hard or indurated, as would be the case in chronic ulceration, and this I took to be an acute ulcer, probably the site of the hemorrhage. There were numerous, very recent, easily separated adhesions about the duodenum, liver and mesentery. The edge of the liver was examined by the finger and by sight, but nothing abnormal was distinguished, and the gall-bladder seemed normal. There was nothing unusual in the portal space, and the pancreas seemed to be of normal size and consistency.

The omentum and colon were lifted up, a slit was torn in the mesocolon and with the finger, and the whole of the posterior surface of the stomach wall examined without finding any induration or evidence of ulceration. A posterior gastroenterostomy with a short loop was then rapidly performed by Moynihan's method by clamps. Pagenstecher thread was used for both hemostatic and peritoneal sutures. The mucous membrane in the incision in the stomach and intestines was cut out with scissors. Owing to his weak condition and the profound shock caused by the operation no effort was made to suture the slit in the mesocolon to the stomach wall, although this was quite large.

There was nothing unusual in the technic of the operation, other than difficulty was experienced in pulling out the stomach sufficiently far to clamp it. A pint of normal salt solution was introduced into a vein in his left arm, and he was given strychnin and atropin hypodermically.

He reacted nicely from the shock of the operation and did not vomit. Nothing was given by the mouth for seventy-two hours, but during this time he was nourished by the rectum. Salt solution was also given by the bowel.

Postoperative History.—On the morning of the third day he had three small stools, the fecal matter coming out through a rectal tube; the first and second contained some few dark and very old bloodclots, mixed with the fecal matter, but from that time on there was no evidence of blood in the stools. There was no distension of the intestines nor disturbance of the stomach, and he was given first water and then Valentine's meat juice, and for some days was nourished in addition by the bowel.

On October 27, the sixth day, as his pulse, temperature and respiration were normal, he was given some scraped beef, a soft-boiled egg and toast by the mouth, without any discomfort following.

His color steadily improved and his strength increased, and on October 28, or just one week after the date of operation, his blood showed 52 per cent. of hemoglobin, 2,170,000 red cells and 2,800 white cells.

By the end of another week he was feeling perfectly well and was digesting all food most satisfactorily. Indeed, the only articles of food which showed any appearance in the stools were two grapes which he had swallowed apparently without chewing, and these had slipped from the stomach into the bowel. He had some edema of the feet and ankles.

On November 7, or three weeks after the operation, he was again seen by Dr. Lewis in consultation, when there was very marked edema over the whole of the body—the feet, ankles, genitalia, chest wall and even the forehead and cheeks. He was passing only a limited amount of water, although the urine showed no evidence of disease of the kidneys.

Urinalysis.—November 8.

Macroscopic: Light yellow, cloudy, slight flocculent sediment. acid reaction, sp. gr. 1017. No bile. No sugar. Faint trace of albumin.

Microscopic: Centrifugated specimen contains a great quantity of calcium oxalate crystals and leucocytes, with a number of epithelial cells.

Physical condition.—The abdomen was distended by fluid, so much, indeed, that his abdominal binder had to be let out several inches, and on a careful physical examination by Dr. Lewis free fluid was found in the pleural cavities, particularly so on the right side. At this time his blood count had improved. The spleen did not appear to be enlarged, neither did the liver seem to be contracted, although on this one point I have not a note made at the time; but the impressions of Dr. Lewis and Dr. McCollin, as well as my own recollection, all go to show there was no apparent diminution in the size of the liver. As the edema was very marked, we were fearful of some form of obstruction to the portal circulation.

Treatment.—We agreed that diuretics in the shape of Basham's mixture, with strychnin and careful feeding, would be the best plan of treatment, and considered that the edema might be accounted for by the extreme poverty of his blood. The amount of urine, which had been scant, increased under this plan of treatment by leaps and bounds until he was passing from 80 to 90 ounces of urine in twenty-four hours. The edema rapidly disappeared, the fluid apparently left the abdominal cavity, and he steadily improved in health and strength.

At the end of three weeks he was allowed to sit up in bed and to go out and about in a little over four weeks.

Blood Examination.—By November 22, or at the end of four weeks, an examination of the blood showed: hemoglobin, 55

1. On October 18, 1905, Dr. L. Webster Fox found considerable thinning of the chorold coat and retina. The remains of a hemorrhage between the optic nerve and macula were visible. The blood vessels in the neighborhood of the hemorrhage were enlarged. He had, also, high degree of myopia, for which Dr. Fox had refracted him in 1898.

per cent.; red cells, 2,810,000; leucocytes, 4,800. Cells were of good size and shape.

General Condition.—All this time his color was improving; he was eating and sleeping well, digesting his food perfectly, and his stools were normal in appearance and color. He became so well and strong that it was impossible to keep him away from his office, to which, at the end of seven weeks, he insisted on going with regularity, but keeping short hours and doing only a small amount of work.

PERIOD OF APPARENT RECOVERY.

On December 27, or at the end of nine weeks, he came to my office and reported that he had gained in weight, which was now 151½ pounds, or about his normal weight. All edema had been gone for weeks, and he had gained in strength. He was going to his office each day for a few hours and simply assuming direction of the work without doing any hard work himself. His digestion was perfect. A careful examination of the abdomen showed the scar to be in good condition. There was no distension of the abdomen and I did not detect any marked diminution in the size of the liver nor enlargement of the spleen, or did the superficial abdominal veins seem unduly prominent. He told me he had eaten a somewhat hearty and injudicious Christmas dinner, but that he had felt no ill effects from it. He did tell me, however, that he had had some dark stools, not the black stools seen so commonly in persons who are taking iron as he was doing, but brownish-black. Several of the stools were not homogenous as to color, but were partly dark and partly light. These dark and partly colored stools had somewhat alarmed his wife, and he came to see me largely to tell me about them and to relieve her anxiety. His general condition was so satisfactory that I did not attach very much importance to this symptom, and advised him merely to take food between his meals, to be careful as to the amount which he ate at any one time, and suggested that he eat only a few articles at each meal.

RELAPSE.

He did not feel well on January 1 and his wife noticed that he was paler than usual, and complained of discomfort in the stomach. He went into town after eating a simple breakfast, however, and went to his office where he remained until 2 p. m. He spent the remainder of the day at the house of a relative, but ate little and slept most of the afternoon, and then returned to his home in the country. He walked from the station to the house—about half a mile—and went to bed about 9:30 p. m.

Hemorrhage.—A little after midnight January 2 he awakened his wife, saying that he felt nauseated, and started for the bathroom but fell at the bedroom door, unconscious and pulseless. Almost immediately he passed by the bowel a large amount of blood, which was dark and contained numerous clots. In a few minutes he regained consciousness, called for a basin, and vomited a large quantity of dark blood and some few clots, showing that the bleeding must have been going on for some hours. The total amount of blood lost by the bowel and from the stomach must have been even greater than at the time of his first hemorrhage in September.

Subsequent History.—I saw him in about 4 hours, when his pulse was 96, full, quite strong, and of good volume. He was perfectly conscious but extremely blanched in appearance and was sweating profusely. He had no more hemorrhages that day and passed a very good night, but about 11 a. m. January 3 he had another hemorrhage which was bright red in color and contained also a few old currant-jelly like clots. He was still further blanched in consequence of this hemorrhage but reacted very well from it, and his pulse, while rapid, had a good volume.

On Jan. 3 his pulse was very fair but he was terribly blanched; his abdomen was scaphoid with no distension whatever; there was no enlargement that could be detected of the spleen; but the liver dullness was greatly diminished—so much so that it did not come anywhere near the edge of the ribs. There was no distension of the abdomen nor any possibility of intestine floating over the edge of the liver and thus obscuring its outline. Certainly there was some condition present producing portal congestion, and Dr. Gibbons and I both believed him to be suffering from an acute cirrhosis of the liver.

On January 4 Dr. Lewis saw him with us again in consultation and now the diminished size of the liver was very apparent, but not so easily demonstrated as the day before, for the large bowel was filled with blood from further hemorrhage. Early on the morning of January 5 he steadily grew worse, had another hemorrhage and bleeding constantly from the bowel until he died on the night of January 6.

On this day a blood count showed: Hemoglobin, 14 per cent.; red cells, 1,300.000; white cells, 16,000.

AUTOPSY.

A postmortem was performed Jan. 7, 1906, by Dr. Longcope.

Anatomic Diagnosis.—Atrophic cirrhosis of liver; enormous dilatation of veins along the greater curvature of stomach near the cardia, with erosion of mucous membrane of stomach, and hemorrhage. Gastroduodenostomy; adhesions between omentum and anterior parietes; slight ascites and rightsided hydrothorax; edema and congestion of the lungs.

General Appearance of Body.—The body was 168 cm. in length with marked rigor mortis. There was very slight postmortem lividity over dependent parts. The mucous membranes and skin surfaces were exceedingly pale, and there was slight edema of the forehead and a suspicion of edema of the ankles. On the right side of the abdomen there was a linear scar 12 cm. in length, extending up from the umbilicus; it was completely healed. On incision the subcuticular fat was found present in fair amount and light yellow in color. The muscles of the thorax were red; those of the abdomen much paler. On opening the abdominal cavity the omentum was found to be adherent to the anterior parietes immediately beneath the abdominal wound and for some distance to the right of it. The adhesions were fat and contained a number of blood vessels, some of which were almost as large as a match stick. The area of parietal peritoneum covered by adhesions measured 7.5 cm. in length by 6 cm. in width. The liver was just visible to the right of the xiphoid cartilage. The urinary bladder was greatly distended. The abdominal cavity contained a small quantity of almost colorless, clear fluid. The intestines were bluish-gray in color, distended, and the serous surfaces were everywhere moist, smooth, and glistening.

Thorax.—The lungs were voluminous and met in the middle line. The left lung was bound to the chest wall by numerous delicate fibrinous adhesions. There was no fluid in the left pleural cavity; the right pleural cavity contained about 200 c.c. of very pale, clear fluid. The pericardial cavity contained a slight excess of clear fluid. The serous surfaces were smooth and glistening.

Heart.—The epicardium was smooth; there was a moderate amount of fat; the cavities contained pale firm clots and fluid blood; the muscle was exceedingly pale and yellowish in color, rather soft. The left ventricle was found to be 10 to 12 cm. in thickness. The valves were normal with faint thickening at the base of the aortics. The coronary arteries were delicate and patulous. The aorta was smooth and rather narrow.

Lungs.—The left lung was very large and heavy. The pleura was covered with fibrous tags, and there were small hemorrhages over the pleura. On section the cut surface oozed quantities of frothy fluid. The surface was smooth and pale pink; air was present throughout. Bronchi at the root of the lung contained frothy fluid; the vessels were clear. The right lung was exactly like the left except that the pleura was free from fibrous adhesions.

Spleen.—The spleen measured 17x11.5x6.5 cm. and was much enlarged, very soft, exceedingly pale, pinkish mottled with purple. It was regular in outline. The capsule was much thickened but free from adhesions. The pulp was exceedingly pale and very soft, with extensive coarse reticulation. Between the reticular bands the pulp was depressed and the space seemed only partially filled. There were adhesions between the gall-bladder and hepatic flexure of the colon, so that the gall-bladder and hepatic flexure were covered by a continuous coat of peritoneum. All the vessels were normal in the portal space.

Liver.—Weight, 1070 gm.; size, 23x14x9 cm.

The liver was quite small, slightly irregular and very firm. The capsule showed some irregular thickening and through it injected blood vessels were seen. There were no adhesions. The surface was finely granular. The inferior surface was much more coarsely granular and in places there were deep pittings. The color was a tawny yellow. On section the cut surface was seen to be rough and presented a very irregular, coarsely granular appearance, producing an artificial lobulation. Between the lobules there were tiny depressed lines, pinkish in color. The portal connective tissue was much increased and filled with small injected blood vessels. Many of the bile ducts were also injected with bile. The gall-bladder was fairly large and covered posteriorly with adhesions. It contained thick, dark green bile. The bile ducts were patent.

Kidney.—Size of the left kidney was 11x5.1 cm. The kidney was of medium size, regular and decreased in consistency. The capsule stripped well, leaving a smooth pale yellowish gray surface. On section the cut surface showed great pallor. The cortex and medulla were in good proportion. The medullary pyramids were regular and pale pink. The cortex was regular and pale yellowish, the striæ were very poorly seen, but when visible appeared to be regular. The glomeruli were invisible. The cortex varied from 5 to 7 mm. in thickness. The pelvis appeared to be normal.

Pelvic Organs.—The urinary bladder, prostate, testes and seminal vesicles were not examined.

Stomach.—The stomach was fairly large. At a distance of 8 cm. from the pylorus, an anastomosis was found between the stomach and the loop of duodenum a few cm. from where it entered the peritoneal cavity. The point of anastomosis was on the posterior wall just posterior to the attachment of the omentum to the greater curvature. All about the line of anastomosis there was much fat which was attached to the wall of the stomach and duodenum and hid the line of anastomosis. On opening the stomach much dark brownish-black grumous fluid escaped, together with some blackish blood clots. The mucous membrane was pale, thin, and showed toward the fundus some mammillation. The opening between the stomach and the duodenum was beautifully smooth, the edges were round, and one could scarcely tell where stomach mucosa stopped and mucosa of duodenum began. A suture still hung free from the line of anastomosis. There was a loop of tough black string 6 cm. in length. The ends of the loop emerged from exactly opposite sides of the wound and hung free in the stomach. Attached to the dependent part of the loop there was a mass of soft greenish-black material about the size of an almond, but with stringy margins looking something like a bunch of seaweed. On the peritoneal surface of the stomach along the greater curvature and about 5 cm. from the cardia there was a bunch of tortuous enormously dilated veins, which covered an area about 7 cm. in diameter. They were collapsed, but some of them seemed as large as a thumb. The mucous membrane and wall of the stomach covering them was exceedingly thin and the tortuous vessels showed through the mucous membrane and appeared to run in a ring 5 cm. in diameter. At one point over the veins there was a tiny erosion in the mucous membrane about 2 mm. in diameter. On injecting the veins with Berlin blue the coloring matter escaped from this tiny erosion, but from nowhere else in the mucous membrane. About the cardiac end of the esophagus there was another small varix. The largest single veins there were about the size of a slate pencil. Fluid injected into these veins did not escape through the mucous membrane. The veins anastomosed with the vessels along the lesser curvature of the stomach. The splenic and mesenteric veins were enormously dilated and showed many anastomoses.

Other Abdominal Organs.—The duodenum was apparently normal. The mucous membrane of the first portion of duodenum was delicate. There were no scars or ulcers. The pancreas was apparently normal. The other organs were not examined.

HISTOLOGIC EXAMINATION.

Heart.—Sections of this organ show a good deal of fat in the pericardium. The myocardium is edematous; in patches the fibers show a fine fatty degeneration. The striæ are not well-marked and there is much fragmentation.

Spleen.—Sections of the spleen show chronic interstitial splenitis. The capsule is thickened. The pulp spaces are empty and collapsed. There is marked general increase in connective tissue with great thickening of the trabeculæ and thickening of both media and intima of blood vessels. The Malpighian bodies are very small and in them, too, there is an increase of connective tissue.

Liver.—Sections of the liver show interlobular cirrhosis. There is marked increase of connective tissue of the portal spaces, cutting the section into coarse lobules. This is very slightly cellular and there is slight, if any, increase in bile ducts. The liver cells are generally granular and show some fatty degeneration. In certain localized areas the liver cells are very large, pale, finely granular, and contain sometimes two or three nuclei. The capillaries about the central veins are large but empty.

Kidney.—Sections of the kidney show extensive degeneration of the epithelium, and some slight increase in connective tissue of cortex. The tubular epithelium shows the most extreme grade of degeneration in patches. The cells are granular, frayed, often desquamated, and the nuclei refuse to stain. Some tubules contain large fat droplets. The ascending loops of Henle are particularly affected. There is no cellular infiltration.

DISCUSSION OF CASE.

The great interest in this case centers, of course, in the diagnosis and in the probable cause of the development of cirrhosis of the liver.

Here was a man, 40 years of age, who had lived a most simple and exemplary life, and who had never taken alcohol in any form, had never had syphilis, nor any tendency, either inherited or acquired, to tuberculosis or other constitutional disease. At the time of operation, as soon as the peritoneum was opened and the clear serum gushed out, doubt as to the accuracy of the diagnosis of acute ulcer of the stomach was at once entertained by all present, and for this reason a more careful, although very rapid, examination was made, by sight and touch, of all of the organs within easy reach. The edge of the liver was seen, and it did not present any gross changes such as would have suggested cirrhosis, and the finger, passing over its anterior surface, did not detect any roughness. The other organs were normal in size and consistence, but I thought, and, indeed, those present believed with me, that there was a distinct ulcer on the free border of the duodenum about one and one-half inches from the pylorus. Here was a spot a little less than an inch in diameter and rather oblong in shape, which was different in color from the surrounding gut; it was indurated, and in grasping it with the fingers gave the sensation of thickening of the intestinal wall, such as is noticed in the very early stages of ulceration of the intestines in typhoid fever. There was, however, no marked induration, such as would have been present if there had been an ulceration of long standing, and not only my assistant, Dr. Macy Brooks, but also Dr. Morris J. Lewis, agreed with me in thinking that this was probably the site of the hemorrhage.

The examination of this place in the gut after death did not disclose any true ulceration; all induration and thickening had disappeared, but at this point the mucous membrane seemed somewhat less thick and its surface had a slight difference in appearance from the surrounding mucous membrane. This was certainly not a healed ulcer. Indeed, it could not have been an ulcer at all; but it must have been an area of hyperemia which, if the gastroenterostomy had not been performed, might have become an ulcer. It is possible, however, that this might simply have been a muscular spasm of a limited portion of a wall of the gut.

The operation of gastroenterostomy was of the most signal benefit by providing drainage for the stomach, thus greatly lessening the local congestion and consequent hemorrhage. The patient was able almost immediately to digest freely a variety of foods in normal amount, and all hemorrhage, both by mouth and bowels, ceased at once. The omentum attached to the parietal peritoneum directly beneath the scar in the belly wall was most happy in its effects; the large blood vessels in it permitted the portal stasis to be greatly relieved, thus accomplishing by accident that which is attempted in Talma's operation.

Our error in diagnosis was very great, but the results accomplished in respect to comfort to the patient—ten weeks of perfect relief from all hemorrhage—somewhat atoned for our mistake.

The details of differential diagnosis between this and other forms of portal congestion and the various forms of ulceration of the stomach and intestines must be left largely to the medical diagnostician in consultation in the case; but I did not give sufficient prominence, in forming my diagnosis, to the sudden and violent hemorrhage occurring without any antecedent symptoms of disorders of digestion, and without there being any pain either before or after its occurrence. While the absence of pain and the sudden overwhelming hemorrhage are all in favor of portal obstruction rather than definite ulceration, yet many cases of acute ulceration are reported by Moynihan and other writers of large experience where all other symptoms referable to the stomach have been wanting.

This somewhat lengthy report is made in the hope that much may be gained in the discussion of the details of this extremely interesting case, and because we have been most fortunate in having had an autopsy made by such an expert pathologist as Dr. W. T. Longcope. I wish to thank him again for the most careful and painstaking manner in which this examination was made.

REVIEW OF LITERATURE.

Dr. R. B. Preble,[2] Chicago, has collected reports of sixty cases of fatal gastrointestinal hemorrhage due to cirrhosis of the liver, all that had been reported in literature up to that date. The most common cause was varices of the esophagus. In the great majority of the cases the cirrhosis was atrophic. In one-third of the cases the first hemorrhage was fatal, and in the other two-thirds the hemorrhages continued at intervals over a period varying from a few months to several years, the maximum time being eleven years. His conclusion is that in one-third of these cases the diagnosis can be made at or before the time of the first hemorrhage; in the other two-thirds the diagnosis can not be made at all, or only after months or years, during which time other symptoms of cirrhosis have developed.

Esophageal varices were present in 80 per cent. of the cases. In only 6 per cent. in these cases which showed esophageal varices was the cirrhosis typical.

One death was due to erosion of veins in the stomach near the cardia. He states that these veins in the cardiac end of the stomach are part of the portal system, while those of the esophagus are part of the systemic system; that they connect by anastomotic branches, which, as a rule, are too small or two few to contribute much to the formation of a collateral circulation when the portal system is obstructed; when, however, the anastomosis is free they become an important factor, and their dilatation may so completely compensate for the veins obstructed in the liver that the clinical course of the case is altered and obscured.

The compensation may be so complete that all the clinical symptoms on which a diagnosis of cirrhosis of the liver must depend, namely, the splenic tumor, the ascites and the subcutaneous abdominal varices, are wanting, and the patient, while apparently in good health, dies suddenly from hemorrhage from the stomach. Hemorrhage was the first and only symptom in ten out of thirty-five of these cases. Two patients whom he mentions, a man of 45 and a woman of 22, were both perfectly temperate in their habits, with no previous history of any predisposition toward cirrhosis, and in both a diagnosis was made of ulcer of the stomach, but the autopsy demonstrated that the stomach and intestines contained no lesions whatever.

2. Am. Jour. Med. Sciences, March, 1900, p. 263.

THE ULTIMATE RESULTS OF KIDNEY FIXATION.*

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As a more or less movable kidney seldom occurs without other morbid conditions of the body, it is often very difficult to tell which of the various symptoms found in a case are produced by the movable kidney and which are produced by the other pathologic condition; therefore, the controversy about the symptomatology and the relief obtained in fixing movable kidneys.

My object in writing this paper is to help clear up some of the points at issue, and I have taken my own experience as a basis from which to draw conclusions. I have gone back five years—to July 1, 1900—and selected all those cases operated on in which the kidney was apparently the only trouble and in which there were no other serious complications or only such other light operations required as curettage, hemorrhoids and catarrhal appendicitis, etc. Cases in which complicated operations were required, such as gall-bladder operations, abdominal hysterectomies, etc., have been excluded as not proper for this inquiry. All other conditions not requiring surgical interference, such as the digestive symptoms, nervous symptoms, pain in the back in the region of the kidney, were considered and taken note of. The patients that came to me sometimes knew they had a movable kidney, sometimes they did not, but in either case they were suffering from the following symptoms:

A feeling of distress and pain was experienced on the afflicted side, in every case the right except one. There was more or less distress. When standing or when lifting anything they would often have a severe colicky pain, which they had generally learned to relieve by forced expiration of the air from their lungs, by bending forward and twisting their body in a peculiar manner, each finding his or her own way of being relieved. Perhaps they would have no trouble for days and weeks at a time. Some of the patients would notice a swelling or lump in the side that would disappear when lying on their back. They would consult their physician and the diagnosis was made.

In nearly every case there was a disturbance of digestion, especially of the intestinal variety, accompanied by bloating; in fact, many patients complained only of that, and on investigation a loose kidney was found.

* Read before the Tri-state Medical Society, Michigan, Indiana, Ohio, Jan. 9, 1905.

Nearly all patients lost flesh, whether they knew what the trouble was or not. The nervous disturbances were well marked in nearly every case. They can be probably best described by calling the condition neurasthenia, which, of course, varies so much in symptoms, more or less severe as hysteria. In general I may say these patients suffered from that indescribable nervousness and restlessness which we find in irritation and disturbances of the sympathetic system of nerves, often accompanied by hypochondriasis and despondency. There was no severe pain or distress in any cases except in those in which I assumed there was a kinking or twisting of the ureter.

In order to get at the ultimate result I wrote out a circular, which I sent to the patient and also to the family physician, expecting thus to hear from one or the other, if not from both, and get the report of the largest number of cases. As already stated, I carefully selected those cases in which I thought the kidney was at the bottom of the trouble. For the five years mentioned the patients number thirty-two, and I received answers from fourteen patients and eighteen answers from the physicians. There were some duplicates. In six instances personal examination was made. The facts in each form the basis of this article.

In the circular letter I asked the following questions:

1. *Has the kidney remained in place?*
2. *Has the pain and distress been relieved?*
3. *Have the stomach and digestive symptoms improved?*
4. *Have any other symptoms of pain or distress been relieved?*

The object of the first question was to find out whether my present technic was perfect. Apparently there has been only one failure which required a second operation. I shall take up the question of technic at some future time. The object of the second question was to find out whether the pain and distress caused by the kidney itself has been relieved. The object of the third was, "Did a floating or movable kidney really produce digestive disturbances?" The fourth was simply put in to get the general results.

CONDENSED REPORT OF CASES.

CASE 1.—Miss A. C., aged 24. Operation Feb. 24, 1900. Family physician wrote: "Yes, is married and has a baby; moved away."

CASE 2.—Mr. F. Operation Sept. 13, 1900. All questions answered "Yes" by family physician. "Works hard."

CASE 3.—Dr. C., aged 28. Operation Nov. 10, 1900. Seen one year later; feeling good.

CASE 4.—Mrs. W. D. J., aged 30. Operation April 15, 1901. First question answered "Yes"; second, "Not entirely; never had digestive trouble; still has dysmenorrhea."

CASE 5.—Mrs. E., aged 26. Operation May 7, 1901. Reported by her physician, who answers all questions with "Yes" and adds: "Her health is better now than it has been for the last ten years."

CASE 6.—Mrs. J., aged 25. Operation July 26, 1901. There was a small ovarian cyst which I removed through the vagina and fixed the kidney in place. Her doctor answers all questions "Yes" and adds: "She has been in good health ever since."

CASE 7.—Mrs. S., aged 25. Operation Oct. 1, 1901. Patient had floating kidney, result of a fall apparently. Her doctor answers all questions "Yes" and adds: "Delivered her of a child two years after operation."

CASE 8.—Mr. G., aged 25. Operation Jan. 27, 1902. I operated on in August, 1901, with an *en masse* suture through the kidney of silkworm gut. When he went to work it came down again, and this time I sewed the resected capsule to the muscle. He has worked hard at farming ever since and writes: "Digestion very much better."

CASE 9.—Miss M., aged 17. Operated Oct. 29, 1902. When lifting a very heavy trunk she noticed something giving way and I found the kidney the only trouble. Stitched in place and her family physician reports by answering all question "Yes."

CASE 10.—Miss M. G., aged 21. Operation March 7, 1903. Physician answers: "Kidney not in proper place, but fixed a great deal better than before." To third question: "A great deal; she can do a good deal of work."

CASE 11.—Mrs. M., aged 29. Operation Jan. 8, 1903. Only trouble floating kidney. All questions were answered "Yes."

CASE 12.—Miss L., aged 16. Operation Feb. 21, 1903. Both kidneys floating. All questions answered "Yes" by her family physician, who adds: "Recovery was slow, but progressive. The girl is now comparatively strong and healthy. It took about a year for complete recovery." She writes: "The kidney has remained in place and I am real well and working every day."

CASE 13.—Mrs. H., aged 27. Operation April 15, 1903. Curetted for endometritis and floating kidney fixation. Report from family physician answers all questions "Yes," which she repeats, but complains of bladder.

CASE 14.—Miss J. K., aged 17. Operation April 30, 1903. Had appendicular colic and floating kidney; could not tell which was most distressing. Removed appendix and stitched kidney in place. She has been perfectly well since.

CASE 15.—Mrs. C. Operation June 30, 1903. Floating kidney with torsion and attacks of severe pain. Kidney fixed in the usual manner. I found liver large and made a small exploratory opening, looking for gallstones, but found none; fixed the coronary ligament to the lower angle of the wound. Family physician answers all questions "Yes" and adds: "She has had no more severe attacks of pain and is much improved."

CASE 16.—Miss D., aged 24. Operation Feb. 14, 1904. A very hysterical patient. Kidney fixation only. Excepting the last she answers all questions "Yes."

CASE 17.—Mrs. G., aged 27. Operation Feb. 27, 1904. Fixed right kidney and double decapsulation for albuminuria. Kidney in place and much improved for six months. Left the city and address not known.

CASE 18.—Mr. S., aged 27. Operation March 23, 1904. Double kidney fixation. All questions answered "Yes." Personal examination.

CASE 19.—Mrs. C., aged 36. Operation Dec. 15, 1904. All questions answered "Yes."

CASE 20.—Mrs. W., aged 45. Operation Aug. 1, 1904. First case of left kidney fixed in place. Her family physician answers all questions "Yes" and adds: "Some distress and nervous symptoms have been relieved." She also answers herself in the same way.

CASE 21.—Miss C., aged 35. Operation Aug. 30, 1904. Patient was suffering from severe dysmenorrhea, for which I inserted a stem pessary and fixed the kidney. The stem pessary dropped out soon after. Her family physician reinserted one lately. He reports kidney still in place. To the second question he answers: "Not entirely." To the third question, "No." and adds: "There was considerable improvement for two or three months and then relapse." Her present condition evidently due to the dysmenorrhea.

CASE 22.—Mrs. G., aged 31. Operation Dec. 15, 1904. Neurotic patient. She answers: "Yes, the kidney is in place; has been relieved of pain and distress, but gradually had return of her headache." To the third question she answers: "Yes, but suffering from constipation." To the fourth question, "Yes."

CASE 23.—Miss T., aged 30. General ptosis. Operation April 25, 1905. The right kidney seemed to cause much trouble; both kidneys fixed. Answers first and second questions "Yes" and adds: "Must still wear abdominal belt. Stomach does perfect work; bowels still give trouble."

CASE 24.—Mrs. B., aged 47. Operation June 10, 1905. Kidney in place. She is the first patient who complains of pain in the region of the incision; perhaps it was pulled up a little too tight. She had other troubles and really does not belong here, but is mentioned on account of pain in the incision.

CASE 25.—Miss P., aged 28. Operation May 28, 1905. Neurotic. When examined four months later kidney was in place and patient had gained five pounds. She walks four to five miles a day. She is not relieved of general abdominal ptosis.

Since reading this paper I saw a patient on whom I operated

five years before and who had not received my letter. She had been perfectly well and worked hard during this time until three months ago, when she again had pain in the right side, which increased. I found the kidney movable, evidently caused by very hard work.

DISCUSSION OF RESULTS.

These condensed reports are more than three-fourths of the total number of cases selected and ought to give the general average ultimate results. To the first question, Has the kidney remained in place? the answers are all "Yes." (One early case was operated on the second time.) Has the pain and distress been relieved? is also answered with "Yes," except by one, who complains of pain in the incision of the back. To the third, Have the stomach and digestive symptoms improved? most answered "Yes," except a few, who evidently expected also relief from headache or chronic constipation. The fourth question, Have any other symptoms, pain or distress been relieved? is answered "Yes" by nearly all patients, while a few still have other troubles.

I have always claimed that the whole question was one of correct diagnosis. I have any number of cases of movable kidney which I do not operate on when they produce no serious symptoms. I have always operated on cases in which I did not know if the kidney or the other pathologic conditions produced the trouble. In nearly every operative case which also has a loose kidney I fix the latter in order to be sure that I cure my case, otherwise the patient will not be relieved and blame me for not doing so. In case of general abdominal ptosis, fixation of the kidney will be of little benefit, although it may relieve one symptom, viz., the distress caused by the kidney, and I always refuse to operate on those cases except the patient has a clear understanding of the doubtful benefit. Still, some of those cases receive a great deal more benefit than they or I expect. I never make any promises. If, however, there is kinking and twisting of the ureter, or albumin makes its appearance in the urine, then I operate, as I have found that fixing a loose kidney and decapsulating it pretty thoroughly relieves, or I might say, cures the early stages of so-called Bright's disease.

At the same time, fixing a floating kidney does not mean that you get it in the exact position where it was or should be, but by fixing it high up as near to the original site as possible you prevent it pulling on or irritating other organs or the solar plexus of nerves; you prevent congestion, and kinking or twisting of the ureter. You simply fix it so that it stays in that locality subject only to that mobility which is required in respiration. You get it as near as possible in its normal position, but that will not cure smallpox nor fracture of the arm nor ingrowing toe nails. It will cure neither piles nor whooping cough. It will not relieve the headache caused by astigmatism. It will not relieve nervous affectations of syphilis nor elevate moral impulses.

As far as the mortality is concerned, I myself have never lost any case, neither in this series nor in other cases of fixation of the kidney. The mortality should be absolutely nil, although an unavoidable death may take place from some accident, chloroform, etc. In a few cases there was a superficial stitch abscess, but this does not interfere with complete recovery. I keep them in bed fifteen or sixteen days and in three weeks they can return home. It seems to me that I am perfectly justified in making these conclusions:

1. Movable kidneys can be permanently fixed by a proper technic.
2. Undoubtedly many disturbances of digestion are caused by movable kidneys, probably by causing irritation of the sympathetic nervous system, perhaps of the solar plexus.
3. Fixation of a loose kidney will relieve some digestive disturbances.
4. Many of the nervous symptoms in this condition are relieved after a short time.
5. A proper diagnosis must be made before operating and the kidney found to be the cause of the trouble beyond any reasonable doubt.
6. The fixation of a floating kidney can not cure cancer of the stomach, remove gall-stones, subdue an inflamed appendix, nor dilate a constricted bowel.

CESAREAN SECTION IN THE TREATMENT OF PLACENTA PRÆVIA.*

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SACRAMENTO, CAL.

Placenta prævia in its manifestations and in its combined mortality of mother and child is the most appalling complication of pregnancy. In its management the courage, judgment and knowledge of the obstetrician will be taxed to their uttermost. It behooves him, therefore, to be prepared for every contingency of this multifarious condition. To paraphrase a paraphrase of Addison, she who has a hesitating physician is lost.

Within the brief period of three months I have seen four cases of total placenta prævia.

CASE REPORTS.

CASE 1.—This case occurred in the practice of Dr. S. E. Simmons and formed the basis of a paper read by him before the Sacramento Society for Medical Improvement. In this paper he laid particular emphasis on the importance of early diagnosis, insisting that every pregnant woman should be carefully examined with special reference to this condition as early as the sixth or seventh month. This is an important point universally neglected.

Patient.—The patient, a multipara, in the ninth month, was practically moribund from hemorrhage when the physician reached her. He delivered with forceps within fifteen minutes, and maintained the circulation with hypodermoclysis and hourly hypodermics of adrenalin for twenty-eight hours, when death took place from circulatory failure.

Remarks.—Nothing, I believe, could have saved this woman. Completely exsanguinated by a sudden and enormous hemorrhage, when Dr. Simmons reached her she was in a state of vasomotor paralysis from which, notwithstanding vigorous and well-directed measures, she never rallied. This case, with any respect whatever for the canons of surgery, certainly was not suitable for Cesarean section.

CASE 2.—This was one of total placenta prævia in the seventh month: there was rather sharp hemorrhage. Dr. Sutliff made a diagnosis of total placenta prævia, in which I concurred. Fetal heart sounds were inaudible, and, as bleeding had ceased, it was thought best to leave the case to Nature. Three days later labor set in and was completed without further hemorrhage.

CASE 3.—Mrs. S., a multipara, in the ninth month of pregnancy, was taken with hemorrhage and attended by Dr. Sutliff, who packed. Hemorrhage was repeated and profuse, and in Dr. Sutliff's absence the husband packed the vagina at least once. The patient was sent to a hospital where I saw her at 10 p. m., Feb. 4, 1905. She was extremely anemic; the cervix was undilated and undilatable; the lower segment was boggy in entire circumference as far as finger could reach: the sac was ruptured and largely emptied; the head was at superior straight, but unengaged; hemorrhage was profuse; the child was alive, but feeble.

In the opinion of both Dr. Sutliff and myself Cesarian sec-

* Read before the Nevada State Medical Society, May 10, 1905.

tion offered the only hope for the child, and practically the only hope for the mother. It was accordingly proposed and accepted.

Operation.—I operated, with the assistance of Drs. Sutliff and Parkinson at 11 p. m., following the plan prescribed. The child was delivered alive in two minutes; the shock and loss of blood were slight; the uterine contraction was prompt and efficient.

Postoperative History.—Uterine infection, suspected at the time of operation, was quite evident the day following. Fearing some accident, however, I delayed intrauterine treatment until the fifth day. From this time on an intrauterine douche, followed by an intrauterine injection of clove oil and glycerin, with the patient in the Sims' position, was given every six hours until her condition was greatly improved, and then every eight or twelve hours until convalescence was established. Within an hour after each injection the temperature dropped nearly or quite to normal, with a corresponding subjective improvement in the patient's condition. The patient left the hospital on the fifteenth day after operation, and both she and her child have done well since.

CASE 4.—Mrs. T., primigravida, in the ninth month, was taken with severe uterine hemorrhage Feb. 8, 1905, at 7 p. m. On examination Dr. Sutliff found a total placenta prævia with long, undilated and undilatable cervix, and with the head presenting at upper straight. In consultation I confirmed the diagnosis and concurred in advising immediate Cesarean section.

Operation.—I operated at 10:30 p. m., with the assistance of Drs. Sutliff and S. E. Simmons. The extreme corpulence of the patient necessitated a freer incision, but without any effort the child was delivered within three minutes. The lower uterine segment was filled with blood, dammed back by the vaginal packing. The hypodermic of ergot was given late, and the uterus did not contract at all promptly or vigorously, but hemorrhage was kept fairly under control by compression of the aorta. The loss of blood, however, was considerably greater than in the previous case. The child could not be resuscitated, although Dr. Simmons thought he felt a few heart beats.

Postoperative History.—The uterus was also infected in this case and the same treatment was employed. The patient left the hospital on the tenth day, completely recovered. Examination May 27 showed uterus somewhat enlarged, but entirely free from abdominal wall.

DISCUSSION OF CASES.

The course pursued in these cases was justified, I believe, both by the conditions present and the results obtained. In the third case with total placenta prævia, undilated and rigid cervix, head presenting but unengaged, sac ruptured and largely emptied, any other procedure would have sacrificed the child inevitably, and probably the mother.

In the fourth case, with total placenta prævia and a long and rigid cervix, the same assumption is not unwarranted.

DIAGNOSIS AND TREATMENT.

Early diagnosis of placenta prævia is imperative. During the sixth month a thorough pelvic examination should be made in every case of pregnancy. The vaginal examination should be supplemented by a rectal one in order to determine the condition of the posterior and lower segment of the uterus, which it is sometimes difficult or impossible to reach by the usual method. Having made a positive diagnosis of total placenta prævia, I believe that serious hemorrhage and likelihood of infection consequent on repeated packing and manipulation should be prevented by early operation, prophylactic Cesarean section.

The difficulty with this dictum, it seems to me, will rather be with its application than its acceptance. To me it seems quite clear that taking time by the forelock and with due deference to the interests of both mother and child, selecting the opportune moment for surgical intervention, we may materially reduce the death rate, maternal no less than fetal.

But what is the opportune moment? The moment of maximum viability of fetus compatible with minimum danger to mother. In other words, the furthest point of pregnancy which does not materially compromise the safety of the mother—as a rule, probably, the last week of the eighth month or first week of the ninth month; earlier, of course, if hemorrhage has already occurred.

PLAN OF OPERATION.

Besides the avoidance of hemorrhage and infection, there is another important advantage in electing the time for operation—all preparations can be properly made.

In an emergency, preparation can be made in a few minutes: Shave abdomen, rub well with clove oil, scrub with sterile soap and water, wash off with alcohol, cover with sterile gauze, sheet or mackintosh with median slit, sterilize hands by same method and cover them with gloves.

Only a few instruments are absolutely necessary: Knife, scissors, needles and holder, hemostats, silk and silkworm sterilized by boiling; in fact, in case of necessity, one might do with sharp-pointed scissors, a hemostat or two, needles and thread.

Whenever time permits the most painstaking preparation should be made, and the most careful plan of operation should be laid out beforehand. Two lives are at stake, and each must be surrounded with every possible safeguard. These precautions consist of three days in bed preliminary to operation; a clear and aseptic digestive tract; free ingestion of water twenty-four hours before operation; thorough antiseptic preparation, and the strictest asepsis in every detail. Competent assistants should be provided in sufficient number; one, with every preparation for resuscitation, to take the infant immediately after delivery; one to compress the aorta after the uterus is emptied; one to compress the uterine arteries if need be, and two to hand instruments, to use hypodermoclysis or venous infusion and to render other necessary assistance. Each assistant should be thoroughly instructed in his special duties; sutures should all be threaded and ligatures cut; saline solution and apparatus for flooding abdomen, hypodermoclysis or venous infusion, ergot and adrenalin solution, Faradic battery, everything possible pertaining to the operation should be in readiness for immediate use, so that, from start to finish, there may not be the slightest hesitation, hitch or delay.

Anesthesia should be induced by a skilled anesthetist, beginning with ethyl chlorid and finishing with ether.

Ten minutes before the first incision a full dose of ergot should be administered hypodermically. Should arterial tension drop, adrenalin chlorid, 1/50 grain, may be given intravenously or hypodermically, but not mixed with ergot, as it might hinder the absorption of the latter and predispose to abscess or to necrosis.

With everything planned and prepared, a median incision from 15 to 20 cm. in length should be made over the most prominent part of the fundus, extending ordinarily about equally above and below the umbilicus, occasionally one-third above and two-thirds below. The abdominal incision should be made quickly, but not hurriedly, and should be completed before the uterine incision is made. While the assistant presses the edges of the abdominal wound against the uterus, the uterus and amnion are incised at either the lower or the upper

angle of the abdominal wound; either Kocher's director or two fingers of the left hand are introduced, and the uterine and amniotic incision is completed with angular scissors. The infant is seized by the feet, or, if the head presents, by the neck, and lifted carefully out of the womb and handed to the assistant selected for this purpose. The cord is clamped in two places with suitable hemostats and cut between.

No attempt at uterine hemostasis should be made until the child is delivered, when the second assistant, after cleansing the wound, should introduce the right hand behind the uterus and compress the aorta, in order to control uterine hemorrhage and to maintain the arterial tension of the central nervous system. If bleeding be not sufficiently controlled in this way, the third assistant should grasp the neck of the uterus with both hands, low down, and firmly compress the uterine arteries. Under the influence of the ergot, the uterus should now begin to contract; if not, it should be stimulated with a strong Faradic current conducted by aseptic cords and electrode; one pole should be applied to the fundus and the other to the back.

The placenta and membranes are removed in their entirety; if separated, by lifting and twisting; if not separated, either by the same process or by introducing the hand between the placenta and uterus and carefully peeling them off. The afterbirth must be examined thoroughly; if fragments remain and the condition of patient permits these should be found and removed. The uterine muscle should at once be stitched with No. 2 catgut alternately from the lower and the upper angle at intervals of one centimeter. A curved needle and holder should be used to carry the stitch into the muscularis just below the peritoneum and out of it just above the mucosa; the order is reversed on the opposite side. An assistant ties the stitch at one angle, while the operator introduces another at the other angle.

The wound is cleansed, and over the intramuscular suture the peritoneum is sutured with continuous Lembert catgut suture. The abdomen is cleansed, if necessary, and left full of physiologic salt solution, particularly in case of anemia or shock. The wound is closed by the tier method.

UTERINE INFECTION.

In consequence of repeated tamponing, uterine infection is a frequent and serious complication of placenta prævia; but with prompt, rational and energetic treatment it may be often aborted. The two cases of infection here reported were treated by the method to be outlined; the earlier one somewhat tardily, because of an exaggerated and probably groundless fear of preventing repair of the uterine wound, the later one promptly, and both patients recovered.

The method which I had previously used with excellent results in a number of cases of puerperal infection, and had described in the *Occidental Medical Times* and in *American Medicine*, is as follows:

> Immediately on evidence of probable uterine infection cleanse the vagina, and under strict antiseptic precautions, with the patient on the back, wash out the uterus thoroughly through a soft rubber uterine irrigator. This may be improvised with two soft rubber catheters—one No. 12, full length, the other No. 16, one inch longer than the depth of the uterine cavity, and fenestrated in several places so as to permit easy outflow—tacked together by two or three stitches. Then place the patient in Sims' position and inject from two to four ounces of 5 per cent. oil of cloves and glycerin. Leave the irrigator *in situ* and repeat the irrigation and injection from four to eight hours apart. Ordinarily I put the patient in Sims' position after washing out the uterus and before injecting the glycerin, and let her remain there as long as she can without particular discomfort. One of these patients bore the Sims' position very well; the other found it painful and had to discontinue it.

SUMMARY.

1. Every pregnant woman should be examined during the sixth month to determine the presence or absence and, if present, the degree of placenta prævia. The examination should be made bimanually both by vagina and by rectum and stethoscopically by the vagina and by the abdomen.

2. In case of central placenta prævia, elective Cesarean section of Sänger type should be done at the moment of greatest viability of fetus compatible with least danger to mother.

3. In case the fetus is dead and labor does not set in spontaneously, it should be induced after placental circulation is shut off.

4. In emergency cases, when the patient is not exsanguinated and a sufficiently experienced operator is at hand, the Sänger-Cesarean section with presumably clean or superficially infected uterus should be done, and the Porro-Cesarean operation if the uterus be positively and deeply infected. (A) In case of total placenta prævia with (1) undilated and undilatable cervix, (2) cancerous or fibroid cervix, pelvic tumors, pelvic contraction or other obstacle to the usual obstetric procedure; (3) ruptured sac with escape of amniotic fluid and presenting but undescended head. (B) In cases of lateral placenta prævia with living child, uncontrollable bleeding, and either (1) undilatable cervix or other obstacle to the indicated obstetric procedure, or (2) ruptured and emptied sac with presenting but undescended head.

5. In elective cases complete and thorough preparation should be made, and the operation systematically planned; distinct functions should be assigned to each assistant.

6. In imperative emergency cases, the surgeon must operate with what may be at hand—scissors, hemostats, needles, thread, antiseptic, ether.

7. Hemorrhage may be prevented by giving a full dose of ergot hypodermically ten minutes before beginning the operation, compressing the abdominal aorta as soon as the child is delivered, grasping the neck of the uterus low down with both hands and firmly compressing the uterine arteries and by Faradic stimulation of the uterine muscle.

8. Shock may be obviated and relieved by preventing hemorrhage; by rapid operation; by introducing physiologic salt solution into the colon, connective tissue, blood vessels and abdomen; by hypodermic or intravenous injection of adrenalin chlorid solution, and by compressing the abdominal aorta.

9. In the after-treatment, purgation should be avoided; colon injections of saline solution from eight to sixteen ounces, may be given at intervals of from three to eight hours; the bowels may be moved by enemata; epsom salts, two to four ounces; glycerin, three to six ounces, asafetida mixtures fifteen to thirty ounces.

10. On the first evidence of uterine infection prompt and energetic measures of local disinfection should be instituted by means of antiseptic exosmosis and drainage.

Normal Diet.—Dr. Harry Campbell, London, says that the minimum normal diet is the smallest quantity of food adequate to maintain a man at the lowest weight compatible with the highest attainable level of health.—*Clinical Journal.*

MORTALITY AFTER PROSTATECTOMY.*

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AND

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Any operation whose mortality varies between 15 per cent. and 30 per cent. for institution work and 4.4 per cent. in the work of an individual does not seem to be based on uniform details.

We have had no deaths as yet in our own prostatectomies, but, with the expectation that later we shall have to report fatal cases and the hope of making them as few as possible, we have gathered from recent literature and personal communications of others interested in this line of work more than a thousand cases of prostatectomy with reference to the mortality and its causes.

We have accepted as possibly due to the operation every death reported as occurring within six weeks of the date of operation. This compels us to omit some extensive lists which only report mortalities occurring within a shorter period. If it be unfair to the operation, as it apparently is in some cases, it must include all cases about which there can be doubt in the mind of any one. A cerebral embolus following an enema given the day before a patient was to go home, and a fatal pneumonia beginning three weeks after operation and a satisfactory convalescence, seem to show the hand of Providence rather than of the surgeon. We have included all such cases and not attempted to edit or explain for the sake of more favorable statistics for the operation.

There is no question but that the reports still show a higher mortality for the transvesical than for the perineal operation, but the difference in mortality is much greater among operators of experience doing the same operation than between the gross results of the two operations. Whether there is any anatomic or physiologic factor which makes one operation more dangerous than the other under proper conditions, we doubt.

Our own cases have been operated suprapubically because the preliminary examinations have convinced us that these particular individuals could be operated more safely in that way. We expect to operate through the perineum when we find prostates which seem more readily approached from below, but with the wide variations in size and location of the obstructing masses or lobes an invariable route of approach seems to us too "consistent" to be the wisest course.

Our figures are taken from original reports which have been published within the past five years with one or two exceptions. The gross mortality compared with that found by other collectors of statistics is shown in Table 1.

TABLE 1.

	Perineal.	Mortality (per ct.).	Suprapubic.	Mortality (per ct.).
Proust[1]	813	7.13	244	12.0
Watson[2]	530	6.2	263	13.3
Escat[3]	382	11	164	18.0
Tenney and Chase	617	7.6	396	9.8

Reports from certain operators are included in Table 1 which lack the details necessary for further consideration according to our plan. Omitting these, we have 816 cases whose age and mortality appear in Table 2.

TABLE 2.

Cases.	Ages.	Mortality, per cent.	Decade mortality, per cent.
8	39-49	0	
31	50-54	10	5.8
89	55-59	4.5	
201	60-64	7	9.5
221	65-69	11.3	
175	70-74	13	15.
65	75-79	18.5	
24	80-84	8	
0	85-89	0	
2	90-94	50	

Most patients with prostatic obstruction present symptoms before 70, even if the catheter is not absolutely required, and these figures show better than any amount of argument the desirability of early operation. We have operated on three men aged 72, 77 and 78, and on one patient of 68, whose heart and arteries were at least ten years older. All recovered, but their convalescence was in marked contrast to that of our younger patients. The oldest surviving patient in this list was 92, operated suprapubically.

Age of itself is no argument against the operation, but conditions which often accompany and sometimes precede old age may increase the risk beyond the patient's wish to face it. No patient willing to face a moderate risk of death in order to escape the misery of such catheter existence as we sometimes see should be denied his chance of lightening his labor and sorrow because of his more than threescore years and ten. He has better than four chances of recovery to one of dying in any five-year period before ninety in the hands of the average operator.

In studying the seventy-three deaths, we first notice that there are fatal periods. There were twenty-three deaths, or more fatalities in the first forty-eight hours than in any other two days.

Another period of mortality includes the seventh, eighth and ninth days, which show twelve deaths. On the thirteenth and two following days there were six deaths, and on the twentieth to twenty-second days inclusive there were seven deaths. Two-thirds of all the deaths came during these fatal periods.

The table showing the time of death of the fatal cases is to us very interesting. First, the duration of life following the suprapubic and the perineal operations is almost identical. Of the 38 deaths in 384 suprapubic operations, 11 (or less than one-third) occurred during the first forty-eight hours, 19 (or one-half) during the first week and 25 (or two-thirds) during the first ten days.

Of the 35 deaths in 417 perineal operations there were 12 (or one-third) within the first forty-eight hours, 19 (or one-half) within the first week and 25 (or nearly three-quarters) within the first ten days. There were no deaths on the twelfth and thirteenth days. Contrast these results with one reported series of 51 patients with three fatal cases, only one of which occurred before the eighteenth day, and another series of 160 cases with one death before the thirteenth day in a total of seven mortalities!

These two series are included in our 617 perineal prostatectomies, with 7.6 per cent. mortality. Taking these out we find two men doing 211 operations with two deaths within twelve days, compared with "the field" doing 406 perineal operations and losing twenty-two patients within the same period. When we include the suprapubic operations we find a total of 45 fatalities in 790 operations within the same period, and these figures do not include the high institution mortality referred to at the beginning of this paper. It does not

* Read before the New England Urological Society, at Boston, May 3, 1906.

1. Proust: Annals des Malad. des Org. Genitourin., 1904, p 1697.
2. Watson: Annals of Surgery, June, 1904.
3. Escat: Annals des Malad. des Org., Genitourin., 1904, p. 1635.

seem as if rapidity of operation could account for the different results, for the two men referred to do not use the most expeditious method. Neither does it seem from published reports that their cases are specially selected. We have tried in various ways to account for this surprising difference—1 per cent. as against 6 per cent.

It has been stated by Moullin, Richardson and others that patients with stone in the bladder are more favorable subjects for operation than others. Our list contains 107 cases complicated by vesical calculus with a mortality of 13 or 12 per cent., as compared with 8.6 per cent. mortality among the cases without stone. If the presence of vesical calculus has any bearing on the mortality it is unfavorable.

The age of 23 patients dying within the first forty-eight hours gives a possible clue to the reason for the large number of early deaths. Three were in the fifties, out of seven dying in that decade, seven of the thirty-nine deaths in the sixties, thirteen of the thirty-five deaths in the seventies, none in the eighties and one patient of ninety-four.

The corresponding figures for forty-six patients dying within the first twelve days give us six deaths in the fifties, or 86 per cent. of all deaths in that decade, twenty deaths in the sixties, or 51 per cent. of the decade mortality, nineteen in the seventies, or 54 per cent. of the decade mortality, and one patient of 94. The number is too small for permanent conclusions. So far as it indicates anything it is that the older men are less likely to stand the shock and loss of blood in the operation, and that the younger men stand the sepsis, uremic complications and confinement less well than the elders. We have also tabulated the causes assigned for death in these 46 cases and have kept the perineal and suprapubic results separately.

TABLE 3.

Cause of Death.	Within 48 hours. Suprapubic.	Within 48 hours. Perineal.	Within 12 days. Suprapubic.	Within 12 days. Perineal.
Uremia	2	5	9	9
Shock and hemorrhage	4	1	4	2
Pulmonary	2	0	5	1
Sepsis	0	2	1	3
Cardiac	2	2	2	3
Collapse	0	0	1	2
Anesthesia	1	2	1	2
Unknown	0	0	0	1
Total	11	12	23	23

No man can tell how many of these deaths were inevitable, but we are convinced, in view of the experience of the two operators referred to, that some were unnecessary and that it is not entirely a problem of speed or technic in the operation. We believe that many of these disasters could have been prevented by the exercise of greater care before, during and after the operation.

Before operation the bladder must be made as clean as possible by irrigation or by drainage through a permanent catheter or a cystotomy tube. The heart and kidneys may require stimulation, the bowels may need attention for some days, and the skin is not to be forgotten when uremia is a possible complication.

During the operation the anesthetist has a great responsibility—only second to that of the surgeon, who must choose for himself the methods most desirable in each individual case. We believe that the after-care of these cases during the first few days is a more important matter than the special technic of any operation. Patients do not bleed to death on the table. A severe hemorrhage at the time of operation is located and controlled, but the bleeding into a limp bladder or the gauze dressing is easily overlooked in a busy hospital. Many of these cases deserve the cause of death given by one surgeon: "hemorrhage and neglect." The kidneys must be kept active and sometimes profuse sweating and purgation must be resorted to. Drains must be kept open, and we believe in frequent irrigation with mild antiseptics, though some men consider it unnecessary. Watering the patient during the first hours of his convalescence is more important than feeding him, which fact must be driven into the ordinary nurse against her will.

Last, but not least, he must be taken out of bed at the earliest possible moment and made to sit up, if only for a few minutes at a time. Our patients have been out of bed by the second or third day and regularly after that.

A prostatectomy is not a completed piece of handicraft, like most clean laparotomies or dissecting operations, after which the surgeon can wash his hands and leave the case to the care of the ordinary nurse or house officer. Each patient should have careful and intelligent attention almost constantly during the first forty-eight hours, and the same sort of attention later at frequent intervals until his convalescence is well established. The more feeble the patient the more necessary is this care.

Prepare the whole patient as well as the operative field for the ordeal; do not attempt too much at one sitting, and remember that the need of minute attention to the patient's condition has only begun when the anesthesia is over. These are the precautions which seem to us most essential to a low mortality after prostatectomy.

NOTE.—With the exception of cases tabulated in Proust's admirable book on Prostatectomy, we have taken all our cases from original reports. The references are much too numerous to be given here, comprising as they do, more than 150 different articles. We wish gratefully to acknowledge personal letters from Drs. Fuller, Young and Watson, which have been of material assistance in preparing this paper, and to express our appreciation of the great value of articles with full details of cases, convalescence and after results such as that published by Dr. Murphy in THE JOURNAL of the American Medical Association two years ago.

308 Marlborough Street.

THE ECONOMIC PRODUCTION AND DISTRIBUTION OF CLEAN MILK.

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An editorial in THE JOURNAL of the American Medical Association December 9 states: "The question as to whether milk is better food for children in a raw or Pasteurized state is easily answered in a few cities where supervision of dairies is properly carried out and the standard of dairy cleanliness high. Under such circumstances, there is no question that the raw material is the best in every way. . . . The conduct of a clean modern dairy requires a large outlay of buildings and apparatus and a much larger force of helpers than is to be found in the average dairy of the present. In order to procure clean milk in our cities, therefore, we must either raise the price of milk or resort to some artificial method of rendering it innocuous. Unfortunately, any increase in the price of milk would fall most heavily on the more prolific poorer classes, and for this reason is objectionable, though it might be possible to educate the general public up to the desirability of this step. Meanwhile the question of Pasteurization is of importance."

From an economic standpoint it would seem that

clean milk could be produced as easily as Pasteurized milk, for properly to Pasteurize milk and effectually to cool it after this process must require fully as expensive, if not more expensive, apparatus.

I desire to emphasize three points:

First.—Remarkably clean milk can be produced without an expensive plant.

Second.—The steps necessary to produce such a milk.

Third.—A scheme for improving the entire supply of cities.

Physicians who have devoted themselves more or less to the diseases of children have been responsible, as a rule, for certified milk, the certificate usually meaning a certain percentage of fat and total solids and a low bacteriologic count. What is said here will have to do only with milk of a low bacteriologic count or clean milk, because we are "firmly convinced from the results in Rochester that this is much more important than high fat percentages."

As Professor Conn of Wesleyan pointed out, it is not so much the number of bacteria in milk as it is the kind. Low counts, however, show how the milk is produced and handled, and if there are few of any kind, of course, there must be few injurious ones. von Behring and his pupils, by feeding young animals non-virulent cultures of anthrax bacilli, seem to have proved that the mucous membrane offers practically no resistance to the entrance of living bacteria into the blood, and the frightful mortality among young infants and the frequency with which they suffer from gastrointestinal infections would seem to prove this for the young of man. This has led von Behring to make the statement that an infant should not receive milk containing more than 1,000 bacteria to the c.c., or quarter of a teaspoonful.

Since the establishment of the Rochester municipal stations and a more efficient milk inspection the death rate in children under 5 has markedly decreased, not only relatively to increased population, but absolutely.

In 1904 the milk stations were unusually popular, and there were many protests against closing them, and we found ourselves with a considerable number of infants demanding clean milk, which they were unable to get for love or money. That is to say, there was no one in Rochester supplying a milk that could be depended on to run below 100,000 bacteria to the c.c. A great many men would occasionally have counts of 75,000. 50,000, or even 10,000, and the next month they would get over 500,000.

The average monthly counts in Rochester for the last six years vary from about 100,000 per c.c. in winter to about 500,000 per c.c. in summer.

Milk is supplied to Rochester very much, I imagine, as it is to other cities of the same size. There are several large dealers who get railroad milk and put out 1,000 or more quarts; small dealers getting railroad milk, and farmers who produce and peddle their own milk.

In spite of the continued object-lesson of these stations to milkmen (for the portable bottling and sterilizing plant has been located at a different farm almost every year), in spite of the opportunity for the milkmen to see how anxious the people are to get clean milk, and in spite of an invitation from the Academy of Medicine to milk dealers to get their milk certified, until this year no one has been found who would do it. In November, 1904, a bulletin containing about such advice as is given later in this paper, warning them about scarlet fever, diphtheria and typhoid and offering to give a rebate to assist in purchasing sterilizers, was sent to every milkman. Then, in order to get some milkman to produce a really clean milk, a letter was sent to about twenty men who had had rather low bacteriologic counts and who produced their own milk, for, of course, those who bought their milk could not control its production. This letter simply asked them to come into the health office, where it was explained to them what it was necessary for them to do, and on our part we said that we would try to get twenty people who would agree to take a quart of milk at the advanced price of nine cents a quart, six cents being the usual price in Rochester.

Much to our disappointment, we have never had a single order for the sterilizers, and we could only find one man who was willing to try to produce unusually clean milk, for we had at least hoped to be able to divide the city into quarters and have one man for each quarter, so that each man's route would not be too long.

The farmer who did qualify had not the advantages of a college education and his barn, although one of the best cow barns in Monroe County, is a very ordinary one. The main building is of two stories; the basement is of stone and partially underground on one side, and the upper part is of very rough boards, with a new, but inexpensive wooden cow barn attached so as to form a T. There are no cement floors. There is an inexpensive wooden milkroom, with wooden floor, situated about thirty feet from the barn. Fortunately the man had a steam boiler and had constructed a metallic-lined wooden tank for cooling the milk. This tank was converted into a sterilizer by making the cover fit tightly and running the steam pipe into it, so that a temperature of 212 degrees could be easily obtained and all the utensils sterilized. The cattle are ordinary grade cows, with a few Jerseys, but all tuberculin tested.

The directions embodied under Point 2 were given. The milk is poured from the milking pails into the bottle filler, the bottles filled, capped and sunk in ice water. No aërator is used. In well-equipped modern dairies these may work well, but we have been afraid to advise it, unless one could control the air in the milkroom rather better than seemed possible here, and it seemed to us one more chance for infection. We think we have also killed the dreaded animal, heat bugbear. We have not talked to a single milkman who has not held up his hands in holy horror at the idea of putting a tight cover on milk while it was still warm. And yet this can be done, and there will be no animal odor if the barn is clean. If milk produced in this way is kept cold at 45 degrees, it will keep sweet almost indefinitely. A quart of milk was opened every day to test it, and it kept sweet for sixteen days, and might have kept longer had there been any left.

The bacteriologic counts of this milk in 100 examinations have given an average of 3,853 cubic centimeter or ¼ teaspoonful, with 21 below 1,000, the lowest 240, and only one (29,000) above 20,000.

Thus our first point has been proved, for this man has certainly done without an expensive barn, what many another small farmer could do.

As to the second point, very long and complicated rules have been given to milkmen, and have been put down in such a way that the men have not attempted any of them, because they did not realize which was the most important. We think that the rules should be very few and arranged in the order of importance as follows:

First.—The protection of the milk from infection by scarlet fever, diphtheria and typhoid.

If one of these diseases develops on the farm, the patient must be immediately removed from the premises and must not come in contact with any one who has anything whatever to do with the milk. The milkroom, barn and cows should be thoroughly cleaned and every utensil must be sterilized by steam.

In case of diphtheria every one on the farm must have an immunizing dose of antitoxin.

These rules should be strictly enforced and the dairyman must be made to report these diseases to the health office; failure to do so, either wilfully or through ignorance, should mean a permanent revocation of the license. If no other place is available, patients with these diseases should be removed to a hospital, even at the expense of the municipality.

Second.—Cooling the milk and keeping it cold, or at least below 50 degrees. At first thought all might not agree to this being so important, but on reflection it will be self-evident. Practically, at least, sterile milk can not be drawn from the cow, so we start off with an excellent culture material already infected, and, if allowed to stay or to get warm, these bacteria multiply beyond comprehension, so that a milk containing 3,000 bacteria per c.c. in the beginning at the end of twenty-four hours would contain many millions, and be infinitely worse than one containing 30,000 at the start, that had been kept cold all the time. If kept very cold the bacteria would not increase much, and the number might be even less in twenty-four hours.

Third.—Keeping the utensils clean, or better, sterile, is about as important as keeping the milk cool. Milkmen must be made to understand that their "scalding" is not so efficacious as actually boiling water in the utensil, or submitting it to steam under pressure for some time, and that nothing like clean milk can ever be produced unless the vessels are comparatively sterile.

Fourth.—Milking directly through sterile cheese cloth into a pail with a small (five-inch) opening. On some thirty comparative counts, versus the open pail at the milk station during 1904, this cut the average count exactly in half. Cheese cloth covers must be changed at the time the pail is emptied.

Fifth.—Keeping milk tightly covered. These five points are absolutely necessary, and without following them milk with few bacteria can not be produced. Milk produced in this way will probably run about 10,000 to the c.c. Now every one of the subsequent points that are followed will reduce the count a certain amount, so that in perfectly equipped and managed dairies the count may run regularly at 1,000 or below. These points are:

Sixth.—Discarding the first draws from each teat.

Seventh.—Keeping the cow absolutely clean.

Eighth.—Keeping the milkers' hands and clothes clean.

Ninth.—Keeping the ceiling clean and free from dust; preferably it should be lathed and plastered.

Tenth.—Keeping the barn clean and using shavings for bedding instead of straw.

Eleventh.—Being careful not to stir up the dust just before or at time of milking.

Of course, in a barn constructed entirely of cement the last four requirements can be much more easily carried out.

Mrs. Cooke of the New York Commission assures us that just as good, if not better, milk can be produced in good dairies without the cheese-cloth strainers over the pail. We do not doubt but that this is so, but unless the last points can be closely followed the strainers seem necessary.

So much for the method of getting a certified milk plant started in cities where there is no such milk supply. But what are we to do for the great mass of people who can not afford to buy certified milk delivered in glass jars at an advanced price?

For the supply of cities we offer this scheme: There should be as many certified milk farms as possible, where the milk is to be put up in bottles at the farm and delivered in this way directly to the consumer. When the cities are small, like Rochester, so that the farmer can be within driving distance, the delivery wagons would start directly from the farm; in large cities they would have to start from railroad stations. For those who are not able to pay a considerably advanced price for this milk, we suggest that the city have a can-sterilizing plant—not a plant for sterilizing milk, dirt and bacteria together—located near the various railroad stations where milk comes in. After delivery the cans are returned to this sterilizing plant, washed by machinery, a cheese-cloth cover put over the can, then the metal cover, and over the entire top of the can a stout canvas cover with a purse-string arrangement so that no dust can get in. These cans are then slid into a sterilizer and sterilized by dry heat. The cans are then shipped back to the farms. The milkman receives his can, takes off the canvas cover, removes the metal cover and milks directly through the cheese cloth into the can. When the can is full, the cheese-cloth strainer is removed, put into a canvas bag, and subsequently returned to the city's sterilizing plant. The metallic cover is replaced on the can, and the can immediately sunk in ice water up to the neck. This can is then carried by rail to the city, and there the milk may be bottled, or the milk may be delivered directly from these cans. This milking, shipping and delivering pail or can should hold about fifteen quarts and have a small 5½-inch opening. The cooling tank should be made so that it overflows at a level just below the cover of this can. This scheme would necessitate the farmer having as his only apparatus a plain wooden tank or trough large enough to hold all his cans and enough ice properly to cool the milk. He would not have to handle the cans at all. In fact, he must be instructed not to handle them. He would not need an expensive milkroom.

This is the application of surgical principles to the milk business. Whenever surgical instruments or dressings are handled they become infected. The efficiency of this one-can scheme was tried in November, 1905, with the following result:

We had no special pail and no quart dipper, the can was opened, a quart poured off and a sample for bacterial examination taken each time.

Five hours after milking, 461; five minutes later, no growth (somewhere under 277); ten minutes later, 242; one and one-half hours later, 200.

The milk was on the wagon all this time.

Bottle milk, the same day, contained 13,000.

As in the dilutions made, only one colony grew; it it seems probable that 461 show some accidental contamination and that 200 would have been the right count with a heavier dilution.

TREATMENT OF THE BITES OF COPPERHEAD SNAKES

BY LOCAL FREEZING COMBINED WITH THE FREQUENT APPLICATION OF A POTASSIUM PERMANGANATE SOLUTION.

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JEFFERSON, MD.

For several years I have averaged about two cases of bites of copperhead snakes a year, and finally hit on a plan of treatment which gives me such good results that it may be worth while to communicate it to others.

My earliest experience with the use of caustics locally and whisky and ammonia internally was unsatisfactory in many respects, although I had no deaths. During the past year I treated for two months a fearful ulcer of the finger and hand which was caused by cauterization with caustic potash for snake bite. The final result was a contracted palm and stiff fingers.

Several years ago Dr. Thomas R. Brown[1] published an account of some experiments with potassium permanganate as an antidote to the venom of snakes of the viper class, e. g., rattlesnakes, copperheads and vipers. Previously I had used this drug in a measure, but afterward I used it almost entirely, at first hypodermically. Being refused this method of administration on one occasion, I used permanganate solution locally on compresses and apparently with good effect. Shortly after I hit on the plan I now pursue which gives me results incomparably better than anything I have known of heretofore. My plan is to freeze the area around the bite with ethyl chlorid spray, incise through the wound, usually making two parallel incisions of almost an inch in length through the two little wounds made by the fangs. Then I soak the part for a few minutes in strong permanganate solution and apply dressings wet with this solution. The edge of this dressing is raised up every half-hour or hour and fresh solution poured over the surface. The incisions, which are trifling, usually heal in a day. Certainly, so far as my experience goes, an incision in an area poisoned by snake bite appears to heal with extraordinary rapidity even in the absence of any effort at asepsis.

This method I have now used successfully in eight cases. I am inclined to attribute some virtue to the freezing by ethyl chlorid over and above the mere anesthetic effect. If the patient is seen within one hour after the bite, he is usually all right in two or three hours, with the exception of trifling swelling. The extension of the poison seems to be checked very shortly after this application. Internally I usually employ a few doses of strychnin, but occasionally use whisky and ammonia as well, perhaps out of respect to local prejudice.

The three cases cited herewith are, respectively, one illustrating the happiest result of treatment, another the most serious case, and the third the most peculiar case of all the instances of poison bites that I have met with.

CASE HISTORIES.

CASE 1.—A boy, aged 8, visiting in the country, was bitten in the wrist by a huge copperhead. The snake was killed and was a typical specimen. It was during the month of August when snake bites are supposed to be most venomous.

I saw the boy within half an hour. Chloroform was employed to control the child, but ethyl chlorid was nevertheless used locally. The pain from the bite seemed to be intense. The arm was already much swollen and blue. The incisions were made. There was some bleeding, which was encouraged by immersion in warm water. The permanganate solutions were applied as usual.

It was 10:30 a. m. when I left the house. On my return at 4 p. m. the boy was out in the mountains playing, and the swelling was scarcely apparent. I did not see him afterward as he was considered well.

CASE 2.—The second patient was a young woman school teacher who with a party of young people was doing some mountain climbing on an August day. She trod on a copperhead of medium size, which stuck its fangs into her foot just in front of the ankle.

It was perhaps two hours before she reached our village, but she had already been sufficiently dosed with whiskey to insure of the good effects of such treatment—if it has any. In my absence a neighboring doctor prescribed onion poultices and more whiskey. Shortly after this she became nauseated and vomited, and could take no more whiskey. It was nearly four hours after the time of the bite when I first saw her. The leg was much swollen, the whole body was of a jaundiced hue, and over the leg were splotches of deeper copper color. The general condition was one of extreme prostration. The pulse was almost indistinguishable, the respiration shallow, but the mind was clear. I gave some aromatic spirits of ammonia and had turned to look after the local wound when the patient became unconscious and respiration stopped. She was given a hypodermic of strych. 1/30 and nitroglyc. 1/100, and artificial repirations were instituted. In a few minutes the injection was repeated. Respiration was re-established shortly afterward, the pulse returned with more force, and the patient revived.

Recovery was followed by a prolonged convalescence. There was marked anemia with a decided aortic murmur for some time. The mottling of the leg persisted for months.

I instance this case because of its gravity, the length of time from the bite until the extreme symptoms set in, and the evidence it afforded of the destruction of the red corpuscles of the blood.

About the time of the publication of the observations of Dr. Kelly and Dr. Brown another article appeared elsewhere in which were compared the relative effects of cobra viper venoms. The statement was made that both venoms contained two toxins, a poison destructive to red corpuscles and a nerve-destroying poison. It was also stated that the blood-destroying element was in excess of viper venom so that death occurred, if at all, some time after the bite, and with distinct evidences of destruction of red blood cells. Cobra bite, on the other hand, was said to be more rapidly fatal on account of the very large excess of the nerve-destroying poison in the cobra venom, the fatal result being accompanied by other evidences of implication of the nervous system.

From this article[1] also I received the impression that very young snakes—infant snakes—of the viper class were very poisonous and that this poison had a somewhat different action from the venom of the older snakes. By the way, it is the popular opinion among our mountain dwellers that large snakes are not more to be dreaded than smaller ones of the same species, and this certainly coincides with my observation. A very peculiar case came under my notice about six years ago, before I had used my present method of dealing with poisoned bites.

CASE 3.—A woman was walking barefoot in her garden on the mountain side. She was bitten on the side of the foot by something she did not see and could not find in the low vegetation that was there. She was a young woman of exceptionally fine physique and robust constitution.

Four or five hours later, when I first saw her, there were two very tiny spots at the side of her foot, and the leg was much swollen, but was white and edematous rather than blue or cop-

1. Johns Hopkins Hospital Bulletin, vol. x, 1899, p. 224.

per colored. She complained of a great deal of thirst, and the body was hot. The pulse was 120, and I was surprised to find a temperature of nearly 102 F. She declared that she had been perfectly well before. There was great pain in the foot and leg, which lasted for some days and required the use of opiates.

On the second day the temperature was 104 F. in the afternoon, and reached that point on several succeding days. An evening temperature of at least 102 F. persisted for three, or perhaps four, weeks. The woman became as much debilitated as from an attack of typhoid. Indeed the general conditions made one suspect typhoid,, and the blood was sent to the state health department on three or four occasions for a Widal test. One report was "suspicious," the others were uniformly "negative." The conditions in the leg persisted. It was pale and edematous. The dorsum of the foot gave a boggy sensation of fluctuation, and was incised deeply on three separate occasions. There was merely an exudation of watery fluid, and the incision did not cause any great pain. But the strangest thing to me was that the incisions healed in twenty-four hours.

Some very small snakes were seen in the garden the day after the woman was bitten. Could she have been bitten by a very small snake? This case has always been a matter of speculation to me, and I would like information on it. The woman has never quite recovered her former good health, and I understand that the affected leg is still different from the other.

Concerning the matter of the very poisonous nature of the bite of new-born snakes of the viper class, I remember a story from the Philadelphia Zoo. A rattlesnake and a boa-constrictor were separated by a fine-meshed wire screen. One night the rattlesnake hatched out young. The next morning some of her venomous brood were found about the dead body of the boa-constrictor.

REMARKS ON SAHLI'S DESMOID TEST OF THE STOMACH.

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In the beginning of 1905 Sahli[1] published a new method of testing the functions of the stomach. It consists of placing methylene blue or iodoform in a little rubber bag and tying it tightly with thin raw catgut.

This "desmoid bag" is swallowed by the patient after a large meal (dinner) and the urine or saliva is tested for the presence of methylene blue or iodin. Methylene blue colors the urine green or blue; the iodin or the iodoform may be demonstrated in the saliva by means of starch paper and fuming nitric acid (violet color). The reaction appears in healthy persons usually from six to eight hours after swallowing the desmoid bag. Its occurrence at this time points to a proper function of the stomach; if the reaction occurs later or not at all, it points to insufficiency of the stomach. This test is based on the fact that raw connective tissue, including catgut, is digested only by the gastric juice, according to Schmidt,[2] and not by the pancreas.

Sahli prefers his method to the usual examination of the stomach contents. He says: "I believe that the desmoid reaction informs us not only how quickly the gastric juice is able to dissolve the connective tissue, but indirectly it shows how well the meal with which the bag has been given has been digested."

It is natural that such a method, if practicable, might be of considerable use. Investigations on the value of Sahli's method were made by Eichler,[3] Kühn[4] and Kaliski.[5] They were all favorable and Sahli's assertions were entirely confirmed. Kaliski even says that the various degrees of acidity can be determined from the strength and the time of occurrence of the reaction. He says in his conclusions:

"1. A deep blue color of urine after from four to seven hours speaks for hyperacidity. If the acidity is normal the reaction occurs after from seven to twelve hours; the first urine is light blue.

"2. In subacidity or motor insufficiency the reaction occurs only on the following day."

As already mentioned, the reaction is based on the solubility of raw connective tissue (catgut) in the gastric juice and not in the pancreatic secretion. Ogata and Schmidt have made these assertions regarding connective tissue. While I[6] was working on my method of testing the functions of the digestive apparatus by means of glass beads loaded with different food stuffs—I looked for a substance that would be soluble in the stomach and not in the bowel. Naturally I turned to catgut because it can be so easily handled. At first I was satisfied with the results obtained. Soon, however, it became evident that catgut was also soluble in the digestive apparatus of patients with marked achylia gastrica. This proves that catgut may be digested in the bowel. In order to establish this fact I made the following experiment: A catgut bead was placed in melted mutton fat and, after solidification of the fat which thus coated the bead entirely, it was given to healthy persons. These beads were then recovered in the stool and found without the catgut. The latter must have been digested in the bowel, as the stomach could not attack the fat.

Although these experiments seemed to show that catgut was hardly suitable as an indicator for gastric digestion, yet I decided to try the desmoid test on some patients. I selected several cases of achylia gastrica, simple and complicated, and tried the desmoid test on these patients. As there was no gastric juice present in these patients, the desmoid test, if it were to be really useful, ought to be negative, otherwise it could not be used for ascertaining the condition of stomach digestion.

REVIEW OF THE CASES.

CASE 1.—A. S., male, was suffering from achylia gastrica, took a desmoid bag filled with methylene blue. Five and one-half hours later the patient noticed that the urine was blue.

CASE 2.—G. N. W., male, suffering from achylia gastrica and subacute enteritis, was examined Feb. 13, 1906, one hour after a test breakfast, with the following result: HCl = 0; rennet = 0; T. A. = 8. He then received Sahli's desmoid bag with methylene blue. Seven hours later the urine was blue.

February 17: The stomach contents were again examined after a test breakfast: HCl = 0; rennet = 0; reaction, neutral. Shortly after this examination (at about 10 a. m.) the patient received a desmoid bag with methylene blue. At 12:30 he took his dinner consisting of a plate of soup, veg-

1. Sahli: "Uber die Prüfung des Magenchemismus unter natürlichen Verhältnissen und ohne Anwendung der Schlundsonde. Desmoidreaction, eine neue Untersuchungsmethode." Correspondenzblatt f. Schweizerärtzte, 1905, Nos. 8 and 9.
2. Schmidt, Ad.: Deutsch. med. Wochft., 1899, No. 49.
3. Eichler: Berlin. Klin. Wochft., 1905, No. 50.
4. Kühn: Münch. med. Wochft., 1905, No. 50.
5. F. Kaliski: Deutsche med. Wochft., 1906, No. 5.
6. Einhorn, M.: "A New Method of Testing the Functions of the Digestive Apparatus," Med. Rec., Feb. 10, 1906.

etables, two scrambled eggs, butter and bread. At 3:30 p. m., three hours after this meal, the stomach contents were removed; the chyme was yellowish from admixture of eggs, its reaction was neutral, and it did not contain rennet ferment. An hour later the patient emptied his bladder, the urine was blue.

February 18: The piece of rubber without the catgut was found in the stool.

February 21: The patient took another methylene desmoid bag. In the evening the urine was its natural color, also on the following day. The urine, therefore, did not turn blue.

February 24: The patient again received a desmoid bag.

February 25: The urine was of a normal color and did not turn blue.

CASE 3.—L. L., male, suffering from cancer of the stomach, achylia gastrica and enteritis, took a methylene blue desmoid bag Feb. 20, 1906. On the following day (eighteen hours after taking), the urine was colored greenish as well as the stool. An examination of the stomach contents on February 21 showed entire absence of gastric juice.

CASE 4.—C. P., male, suffering from achylia gastrica, was examined on Feb. 24, 1906, one hour after Ewald's test breakfast. *Result:* HCl = 0; rennet = 0; reaction, neutral. Shortly after this the patient received the methylene blue desmoid bag; four hours later the urine was blue.

REMARKS.

In these four cases in which there was a complete absence of gastric juice the desmoid reaction was positive. Only in Case 2, in which the desmoid test was applied four times, a varied condition was observed, the test being twice positive and twice negative. I usually examined these patients with the desmoid test on the days on which I tested their gastric secretion by means of the stomach tube, in order to be certain that no gastric juice was present. As the desmoid test was usually positive, I had to conclude that it was entirely unsuited for the examination of the stomach secretion, i. e., that it did not indicate whether gastric juice was present or not.

Sahli himself has been led to think that some error might be attached to the method, for he says: "On the one hand we have cases in which the test breakfast shows a lack of free HCl and yet the digestion appears to be sufficient according to the desmoid test; on the other hand, there are cases in which the digestion appears to be insufficient with the desmoid test, although after the test breakfast free HCl is found. I naturally thought at first that the desmoid test had some inherent fault. I was unable to discover it, however, and came to the conclusion that, on the contrary, these differences and apparent contradictions furnish a plain illustration of the value of the method and the defectiveness of previous procedures."

Sahli thinks that after a test dinner there is sufficient gastric juice even when the test breakfast shows an absence of free HCl. This would hardly correspond with the usual clinical experience. In order, however, to controvert even this objection of Sahli's I made the following experiment: In Case 2 I made a second desmoid test. Five hours after the patient had taken the methylene blue desmoid bag and three hours after a larger meal I again examined the stomach contents and found first, an entire absence of gastric juice and, second, no blue coloration of the stomach contents, although the urine voided shortly afterward was blue. In this case the reaction must have occurred in the bowel; otherwise the urine would not have been colored.

All in all, I must say that Sahli's desmoid reaction is unsuitable for the examination of the stomach functions because catgut is digested in the bowel as well as in the stomach.

SANITARIA AND TENT COLONIES.

DO THEY PREVENT AND CURE TUBERCULOSIS?*

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Whether sanitaria and tent colonies are the best means of treating and preventing tuberculosis is, it seems to me, a seasonable question. We easily recall how our old friend, the pendulum, is called on to picture for us a point. The proneness of a majority to assemble at either terminal of the arc is too true to be successfully refuted. The psychopathy of majorities must still be recognized.

It is not from a spirit of unkindly or adverse criticism or vicious iconoclasm that the subject is presented here in the form it is, but in order that a negative presentation may bring out the discussion the subject merits. It is realized that this exclusive and expert management as a form of treatment of tuberculosis has passed beyond the incubating period and is now in its maturity with abundant material for its defense. The potency and beneficence of pure air and sunlight has always been recognized. When the king asked Diogenes what greatest favor he could do for him, Diogenes asked the king to step out of his sunlight.

THE HOME THE UNIT.

As the home is the universally admitted unit of the state, its stability and integrity should be recognized as the first of all the agencies in the prophylaxis of disease, as well as in the prevention of crime. On the home foundation is built all that is good in state or individual, ethnically, ethically and sanitarially; here is the battle-field of bacteria, the vanquishing of which means the prevention as well as the cure of disease.

The ever-present and forever-enduring desire of the physician is to prevent disease, to alleviate suffering, to exalt mankind and to save and prolong human life; or, as Sir Thomas Browne, the quaint doctor-philosopher of the early seventeenth century, euphoniously expressed it, "It is better to appease pain than to invent pleasure." He who first and best does this, by word of mouth or touch of pen or hand, best serves his fellow-men; this endeavor, often arising to an aspiring, and may be some times erring ardor, has led men's minds to widely diverging views and ways.

In the zenith of his fame the eminent Louis Agassiz received urgent and complimentary invitations from numerous learned citizens and bodies across the seas to visit them, to aid some line of study or to direct some interesting research to a satisfactory conclusion; to all of which he replied that he had a field nearer home in which he wished to direct investigation. Immediately the scientific world was agog to know what great discovery was about to be made, and students and scientists began soliciting invitations and making inquiries as to his work. He replied that there were a great many things in his backyard strange to him and that needed investigation. So I am assured that in the investigation and study of the prevention and treatment of tuberculosis there are a great many things in our own vestibules as well as backyards that need investigation. We have not kept near enough home, in more senses than one; home study and homemaking is a neglected profession.

RESPIRATION.

The so-regarded simple, though most important, function of existence, respiration, hardly receives a

* Read at joint meeting of the Winnebago County Medical Society and the Central Wisconsin Medical Society, Jan. 30, 1906.

thought in our economy or training until deranged. The newly born babe is so wrapped in its swaddling clothes that it has to battle for its breath, and the numerous instances of "found dead in bed" are only cases of a babe smothered for want of air. Even the quality of air it gets is strained through many layers of soiled and not aseptic cloths. From this time on, no thought is given to the kind of air it breathes; it lives by sufferance and by suffering alone; but what it shall drink and later eat engages all attention. Food, food for the palate and not for the needs, is sought in every clime, in land and sea, and air, *but not of the air itself;* lowest fungi and highest thorough-bred alike are devoured; "balanced ration" and more often unbalanced are devised and consumed, and only the extreme limitations of the receiving viscus stops the intake. Then what medicines are sought to digest the incongruous mess? Every acid and every alkali, enzymes and peptones, natural and synthetic, are invoked to aid and digest the monstrous mass—for it is no longer food—remaining in the worn and wearied stomach.

The waters of Abana and Pharpar, of the mountains and valleys of Egypt, Europe and America, have been sought and urged for drink; they have been boiled and filtered of their organic salts and others added; they have been drunk boiling hot and ice cold; their gases driven off and others added at the ingenuity or option of the concocter. With the gastronome thought continues dominant for newer foods and more of them, for more capacity and more area, while the pneumogaster remains an unknown and faultily used territory.

Malnutrition from gastritis, apepsia, benign and malignant disease of stomach, if basically admitted, are as prevalent as tuberculosis and about as fatal, because more unamenable to managerial treatment; and from this polluted pool there is poured through the chyle duct into the vena cava descendens into the right auricle and into the lungs many of the diseases of the lungs. Chalmette, of the Pasteur Institute, announces, in his latest report, that, in the immense majority of cases, tuberculosis of the lungs is acquired through this channel from ingestion of bacillus-laden dust and food débris.

The literature on cooking is coexistent with civilization; enough recipes are written to fill a national library, and cooks, outdoing doctors in recompense, are the highest salaried of artisans. But who, with respiratory diseases causing more deaths than all other diseases combined, has heard as much written or said of the amount or quality of air to breathe or how to use it, or who teaches or studies pneumodynamics? From the proximal vestibule at the nose to the most distal ceca of the respiratory tract, who knows among the laymen, or cares among physicians, what becomes of the involuntary tidal air, to say nothing of the residuary air, or how to use the complemental or supplemental air we well know swarms with bacteria?

At early catechism, we were taught that "God breathed into man the breath of life," and most people go on as though the same beneficent Power was going to continue the pumping act for them. Complete inspiration and expiration is seldom called into use except by vocalists and professionals. If, after the indifferent use and wear of the brief period of adolescence, puberty is reached in the rocky road of life and there is a scratch, a hacking cough and a "puncture" has taken place somewhere in the "inner tubing," and there is a hemorrhage or an emphysema, then alarming and immediate repair is demanded and the call is very imperious. Had the vestibule and anterior filters been kept clean, not to say aseptic, the areolar tissue of the lungs been systematically and persistently exercised, the alveoli expanded and, accustomed to use and good air, their capacity would have enlarged, their resiliency strengthened as exercise strengthens any part, resistance would have been increased, the invader vanquished and the abrasion, ulcer, puncture, would not have taken place.

The complete demands for oxygen in the economy are scarcely ever met; the adolescent boy goes about with stooped shoulders and a disfiguring acne, because his respiration does not stimulate his pleuritic or cutaneous capillaries and their accompanying lymphatics. His sister is flat-chested, has a pasty skin, cold hands and feet, a dislike for duty, an irritable temper and a lackadaisical manner, with often recurring amenorrhea, because of deficient respiration and lack of hematin and oxygen. She is the near and easy target for pulmonary tuberculosis, because no one taught her the importance of the life-saving function of complete respiration; she did always breathe, it will be said, but how much of the normal respiratory capacity of her lungs did she employ? She probably never knew the exhilaration of oxygen stimulation, the "compound oxygen" of God's laboratory? Her physician never called her attention to the necessity and quality of this food. He was derelict. He gave her an alluring preparation of iron with probably a label "made in Germany" on it (instead of made in Pittsburg). He may have recommended her to eat more and to walk in the air, but she did not know how to breathe or what for. If she ever had vocal lessons, it was to sing and never thought of it as to live; her lungs, her thorax, her physical heart, she knows nothing about; these organs and their functions are as ephemeral to her as are the nebulæ of the heavenly constellations which she will soon join in the primary class, unless she learns to breathe. Ask her to expand her chest, and she may reach an inch on the tape, scarcely over; put her at a spirometer and she may go beyond the one-hundred mark, more likely under; she retains in her lungs from day to day, may be from week to week, the residuary air of a germ-laden church, dance hall, theater, schoolroom, Pullman sleeper or dirty street car. The shallow tidal air is never supplemented by an inspiration or expiration that would replace the toxic compound; the autointoxication of residuary food is now well taught and acknowledged; but the autointoxication of vicious and residuary air, who teaches or knows about this? The girl's bronchioles and air cells had become constipated and needed a purge. She can not get refuge in the ubiquitous pill, but she must breathe, exhale, or be left pneumotoxemic, probably tuberculous, certainly listless.

Our pneumonias are no longer regarded as local infections, but systemic; and so is tuberculosis, with this distinction that one is acute and overwhelming, and the other insidious and usually chronic; both are residual air toxins; both are preventable diseases. No one taught this creature how to breathe or its necessity. She was waiting for germs lurking in that residuum to incubate; a more favorable soil, undisturbed, with warmth and moisture and rest could rarely have been prepared; she was waiting for the afternoon hectic and the delayed or missed menstruation before any one told her she ought to have air to breathe. Some one again derelict! Her lungs are atrophied to flabby appendages in her thin thorax from nothing but disuse; inability to inhale, less to exhale, non-resisting to disease from non-use. Non-resisting! This suggests the keyword to the preven-

tion of tuberculosis, which is breathe, breathe good air. The report of the National Bureau for the Prevention of Tuberculosis says, at the close of papers and discussions, that "the problem would soon disappear of itself if it were possible for everybody to breathe fairly pure air, to be clean with a reasonable effort, and to have enough of the right sort of food to eat." This is what called into existence the sanitaria where people get and are taught this; the isolated cottage, the lone tent and the open field. It should be taught in the home and practiced there first.

RESPONSIBILITY OF THE FAMILY PHYSICIAN.

When this health-breathing opportunity and period has passed and the sanitaria and the tents are reached, the golden apple has been stolen from the Hesperian garden of youth and the battle with the hydra-headed dragon of tuberculosis is begun. Can either or both defeat this foe? Again some one was derelict! Doctors as much as laymen have allowed themselves to be directed by the sugary sibillation of "specialist" and "expert"; the family physician, the most important factor in sanitary science and sanitary society, has been rendered by this presence too timid; he has not been persistent and positive enough; his innate modesty has influenced his dictum. The family physician is the agent to advise to prevent tuberculosis; the so-called "specialist" may be a medium to confirm the wisely-guarded suspicion and diagnosis of the family physician and convey the unpleasant intelligence to the subject or the family; but his affiliation with a teaching faculty of a medical college or a connection with a sanitarium or a tent colony has done and can do nothing to prevent tuberculosis in a family. Simon A. Knopf, the early interne in one of the first large sanitaria in Germany and the leader in urging states to provide infirmaries for the tuberculous poor, said,[1] at the Atlantic City session of the American Medical Association in June, 1904, "We must look to the family physician for the early curable cases." Further on he says, "The bacteriologic examination in individuals with early symptoms, even if repeatedly made, is but rarely positive, for there is not enough disintegration to show the presence of bacilli." In another paper he says, "No matter how many sanitaria and special hospitals for the consumptive poor we may have, we must look to the family physician for the bulk of the work in fighting the great white plague." Dr. Osler, who needs no introduction, said, "In the warfare against tuberculosis the man behind the gun is the general practitioner; the battle can not be won unless he takes an active, aggressive and accurate part."

STARTLING STATISTICS.

Applying statistical tests to this subject will not avail, because in its complexities are involved too many varied factors; all those of a complex body and of a complex disease, besides those of age, heredity, employment and environment; to detach a segment or fragment in this cycle and employ it in a consideration of the whole would be impossible and unreliable. Tuberculosis has domestic, filial, social and economic facets that must be adjusted to each other without friction in the management, and that means the treatment of tuberculosis.

Sociologists furnish the startling statistics[2] of four million families in the United States who subsist on four hundred dollars a year; employing the usual multiple of five to a family and there are over one-fourth of the inhabitants of the nation living on an income so close that there is no computation that would permit them to avail themselves of the alleged advantages of a sanitarium or a tent colony at present prices of management or supply them with the needed beef, eggs and milk at present trust prices. Should the bread winner himself be stricken, conditions would be still more deplorable. According to Robert Hunter's estimate, there are an equal number of willingly unemployed peripatetics, indigent by birth and training, disseminators of disease and vice, lawless in the moral code and utterly devoid of any appreciation of sanitation, on whom the law can apply no restrictions except vagrancy, which they court when winter time comes, polluting and inoculating fellow-prisoners in jails, almshouses and rural homes.

The question whether a patient should be told of his affliction is no longer a negative one; there is more safety in knowing and battling aright than in being deluded with ignorance of the disease and battling wrong. Then there is the aid through instruction that can be given to make a winning fight by one who, through study and training, knows, and that one is the family physician.

At the Tuberculosis Exposition in Philadelphia, Feb. 23 to March 1, 1906, of the dozen or more papers presented, not one dealt with *tuberculosis in the home*. The state, the municipality, the factory and the railroads were dealt with, but there was not a word about the home. And yet it is stated that the most attractive as well as graphic feature at the international congress at Paris last December was the little "model cottage bedroom, hygienically fitted up in the most modern and inexpensive way, showing not a speck of dust on the brightly varnished, lacquered or polished surfaces." An ideal object-lesson for a home and one practically attainable by any one anywhere. Even if statistics of sanitaria and tent colonies were admitted as to their real curative claims, they would be of little value. At the Philadelphia meeting of the Pennsylvania Society for the Prevention of Tuberculosis held last December in the Phipps Institute the statement was given out[3] that 90 per cent. of the people of this climate and country had implantations of tuberculosis some time or other; and with the familiar estimates variously furnished that from 8 to 11 per cent. of all deaths are from this disease, it must follow, if even the greater mortality per cent. is taken, that nearly 80 per cent. recover. Germany gives similar estimates, saying that "every one has had at some time a focus of tuberculosis," an estimate and claim no present sanitaria or tent colony has excelled or equalled.

Then, too, thus far in the crusade against tuberculosis, the inmates of all private and many public sanitaria have been volunteers of superior heredity and social environment; and even from these have been selected only those who on inspection and physical examination gave promise of successful management. Quoting Simon A. Knopf[4] again on sanitaria treatment, "Sanitaria are usually unwilling to receive cases that do not offer a favorable prognosis." Advanced cases are never taken. At the international congress held in Paris last autumn the statement was made and not refuted that "German sanitaria confessed that they accept only about three out of every ten presented them." Thus the presentation of figures from sanitaria as at present manipulated are of but little value until numbers and cases are admitted without regard to class or condition. Then,

1. THE JOURNAL A. M. A., Feb. 11, 1905.
2. "Success," January, 1906.
3. According to the Philadelphia American, Dec. 8, 1905.
4. New York Med. Record, November, 1905.

as to selection of applicants without bias, and on diagnosis only, another usually unadmitted difficulty is encountered. Dr. Bridge[5] says that "tuberculosis of the lungs always exists for a considerable time before it announces itself by signs or symptoms." Also Drs. Bradford and Seymour of Gouverneur Island Hospital, New York, in a paper read before the Hospital Alumni Association, at the Academy of Medicine, Jan. 13, 1905, say, "There are a not inconsiderable number of cases of such doubtful character that we keep them under observation many weeks or months before we can arrive at a diagnosis, if we are able to do so at all," and this in a dispensary where only "chest disease" patients are sent. One dispensary in Philadelphia last year passed on 900 patients of the poorer class without reporting a single case of tuberculosis. Still, in the face of such evidence, Dr. Trudeau of Saranac Lake Sanitarium says that "the average family physician can not make a diagnosis of tuberculosis." We all realize that to err is human, but to diagnose is divine. Those of us who have passed beyond the dogmas of the lecture room and the dicta of the so-called "expert," and have trained experience and historical data of cases and families extending through years, know that diagnoses have often been confirmed or defeated by the great arbiter Time, and that the family physician's early and guarded suspicions and directions as surely matured into a positive diagnosis and cure as those hastily culled by the college professor or the prolific and fluent author.

PLEA FOR HOME TREATMENT.

If, as Dr. Trudeau says, the family physician can not recognize tuberculosis until the physical symptoms have become well marked, then some one has been derelict; this doctor has the great five senses and the same gyra and convolutions; he has a diploma from the same college as his mentor, signed by the same faculty attesting his competency; he has access to the same text-books and reads the same journals; he is not distracted by the myriad subjects that divert his city confrère, and he studies his cases clinically as well as physically and can have bacteriologic examinations, and his diagnosis is to be relied on. The fast mail and rural free delivery keeps the remotest doctor in touch with the latest and the best at all times. He can become as faultless in technic and diagnosis and as familiar with management and direction of tuberculosis cases as the sanitaria director or employé. Knowledge is not confined to the few, but is the common heritage of all. The institutionalizing of a community is to be guarded against; the rightly cultivated independence of the average American citizen is to be encouraged and his dependence to be deplored. It is the initiative of the American that has marked his successful progress in civil, military and industrial life, and it is this that is to make him the efficient helpmeet of the family physician in the conflict with the great white plague. The dependence, servility and stoicism of the peasant on the other side of the pond is not to be taken as a guide for the citizen on this side; let us avoid institutionalizing him. The social and economic question, the first to be considered, can be best met domiciliarily; of these the family physician knows more for the family's sake and for society's sake than any one else can possibly know. The depression that domestic or rural isolation burdens the tuberculous child or adult with will deter its progress in an institution; ennui and nostalgia, the concomitants of a strange environment, both great depressants, would not have to be contended with in the home, besides the psychic stimulus of the family doctor's visits and his helpful words to the family would certainly be more inspiring than the words and presence of the indifferent patrol or nurse of an institution. The educational advantages of such a nucleus in a neighborhood would also be of incalculable advantage, because each would be an object-lesson carried on in the identical environment that the restored subject must spend the remainder of his or her days in.

Already S. A. Knopf, whose name I have freely used because of his close identity with sanitaria work, is modifying his views to adjust them to the home and has suggested the elevated house recess, the porch-lodge and window canopy inside the house to protect the patient and still be really in the open air, but under the care of parent or family, thus favoring domiciliary treatment. Numerous other devices, resourceful parents and an ingenious doctor will invent and adjust to the cottage, the tenement as well as to the mansion.

In a recent address before the Civic Betterment Association of Philadelphia, in the Civic Club's rooms, Dr. Walsh said:[6] "If consumptive patients are curable at all, they can be cured at home," an indication of the trend of thought among those engaged in research work. This is also the highly commendable sentiment and spirit prevailing in the Visiting Nurses' Associations of the various cities and states[7] which provide home treatment, nursing, care and, most and best of all, instruction and adjustment among thousands of consumptive poor with their own facilities in their own environment. It is this education of common people along common lines of wholesome living, the nutritive values of foods and their economics; above all else, the value of pure air and the means of obtaining it, that will vanquish this common foe of mankind. That this was the sentiment of the Paris international congress last October was brought out by Cheinisse in the *Semaine Medicale* October, 1905. Cheinisse remarks that "the first enthusiasm for the sanatoria as the sole means of salvation from tuberculosis has subsided. The recent international congress showed this declining tendency in a marked degree. The sanitaria for the well-to-do person who can modify his mode of life afterward so as to maintain the benefit derived is still the great benefit claimed at first. Members of the working classes, however, return from the public sanitarium to their old poverty-stricken environment. Their zeal and conviction will gradually be modified, and they will refrain from using their pocket cuspidors for fear of the prejudices of the proprietors and fellow-workmen, as it stamps them as dangerous. The rôle of the sanitarium in prophylaxis is thus illusory; its therapeutic rôle, evidenced by the restoration of the working capacity, is more than dubious, as it is subordinate to the natural progress of the disease and to the occupation of the individual. On the other hand, the expense of the public sanitarium as conducted in Europe (who would expect them to be any more economically conducted in profligate America) is out of all proportion to its purely palliative effect among the laboring classes." Cheinisse cites Beco to the effect that the sanitarium has been too long regarded as the pivot of the antituberculosis campaign, when in reality it is only a secondary element. He adds that experience in Europe has also shown that, "besides the true scientific and useful dispensaries,

5. Bridge: "Tuberculosis."

6. Philadelphia American, Dec. 8, 1905.
7. THE JOURNAL A. M. A., Dec. 2, 1905.

pseudodispensaries spring up for advertising purposes, which, under the guise of benevolence, are in reality but centers of competing interests to advertise politicians connected with the inception and promotion of the dispensary. Thus patients find themselves at the mercy of regrettable practices where séances of electrization or ozonation, or exploitation of pharmaceutic specialties substitute real hygienic regulations." One need but look about in our own country to see where yankee enterprise would very soon lead to in such schemes.

The congress adopted a resolution to the effect that the sanitarium and the dispensary are neither exclusive nor predominant in the campaign against tuberculosis, but that the problem of healthy homes will always dominate its prophylaxis. Its control belongs to the individual and to the family and its prevention to the tutelage of the family physician.

The original unit of society remains the family, and through it the factor to prevent tuberculosis is the family doctor. There are, and will be only a few sanatoria, but there are and will be many family physicians.

The errors of our homes and home lives are so inconsistent and palpable that it is a wonder we have passed them by. Against constant knowledge and teaching, homes are made as hermetically tight as mechanical skill can make them. We chide the poor for listing their windows and stuffing the keyhole; but the well-to-do have impervious walls, double storm windows and double air-locks or pneumatic caissons at their doors; air is reheated from gilded radiators and pallor is the stigma of its inmates, and non-resistance to disease is their fate. Sunny days are the claim and boast of regions seeking recognition as health resorts and the preachment of the sanitarian; yet the architect is ignoring all this and designing houses and porches to shut out all the sun possible; porches that throw the house "in the shade" are in vogue. As if this were not enough, they erect a massive quartet of twenty-ton pillars to support a two-ton roof, and shade all the area possible. In the home the sunny window is taken up with a few straggling plants set in stable compost, while the baby or the invalid is hid in a shady and darkened corner behind the stove or over the radiator.

It has been asserted without contradiction that the demise of the North American Indian by the tuberculous route is due to his exchange of the tepee for the modern house. But the lesson and application is lost; for we triplicate their errors and invite the disease, and then with an atavism fought through many generations promptly relinquish our boasted civilization and again seek the tepee and the bush for relief without inurement to the storm or the relentless sun, and expect immediate relief from our woes.

Let us be sensibly consistent, and consistently sensible in this struggle against a self-invited foe; teaching that it is every one's duty to be enrolled in the defensive warfare, that the home is the fortress from which the battle must be fought in both its prevention and its cure; that the family doctor is the commanding general and must be prepared to do his duty to all, and the victory is ours.

Uncinariasis.—G. Peri (*Atti dei Lincei*), discusses how far *Ankylostoma duodenale* is parasitic in other animals than man. Peri has been able to infect dogs both by way of the mouth and through the skin, and there are good reasons for believing that horses are also susceptible to the infection. The practical importance of the liability of the domestic animals is obvious.

Special Article

THE PHARMACOPEIA AND THE PHYSICIAN.

CHAPTER XX.

ALTERATIVES.

Alteratives are tonics, which, in some unknown way, favorably influence the processes of nutrition which have been disturbed by disease. They include the hematinics, which were discussed in the preceding chapter, the various preparations of mercury, and many, if not all of the preparations containing iodin, either free or in combination.

A number of drugs of vegetable origin, such as sarsaparilla, were formerly classed as alteratives, but these are, for the most part, merely purgatives, or else devoid of therapeutic interest.

The use of the thyroid gland in thyroid disease and in obesity, and of the newly discovered serum of Beebe in exophthalmic goiter, have a scientific basis, but the employment of the iodids in rheumatism and in syphilis, and of the mercurials in the latter disease is empirical, and in this connection the pharmacology of these agents is of minor importance since it throws little light on their therapeutic applications.

While the attempts to investigate the action of these agents have not led to satisfactory results, we may refer to the conclusions of J. Levi, who sought to compare the effect of mercurials and of potassium iodid on the metabolism and on the blood of syphilitics. He used potassium iodid and various organic and inorganic preparations of mercury in the second stage of the disease on 252 patients.

Levi found that the mercurials increase organic combustion and hasten metabolism in this condition. With the gradual disappearance of the disease the processes of nutrition improve, but relapses are frequent. He found no evidence, however, of a specific influence on the micro-organism of syphilis, but according to the most recent view mercury is antagonistic to this micro-organism.

If the use of mercurials be too greatly prolonged the number of red blood corpuscles is diminished. Levi found that potassium iodid had a similar general influence on the nutrition syphilitics. While it causes an increase in the body weight, improves the blood, and adds to the muscular strength, it retards combustion and lessens metabolism. He explains its uses in tertiary syphilis by supposing that it neutralizes the disease products without increasing organic combustion.

Nearly all observers are agreed that the action of mercurials is almost wholly independent of the preparation chosen, the only essential for its action being that it shall be absorbed. Mercury probably circulates as an albuminate, which is soluble in the blood because of the excess of proteids and chlorids which it encounters there.

Owing to the obscurity of many of the symptoms of syphilis, and also to the fact that a comparatively large number of people are not willing to have it known to their physician that they suffer with so loathsome a disease, the condition is peculiarly favorable for the practices of charlatans. While there is no disease that more urgently demands the skill and judgment of the specialist, there is none, perhaps, that is so frequently treated by incompetents and even by patients themselves.

While we have always with us the humiliating spectacle of numerous nostrums ostensibly advertised only to the medical profession, some of them of vegetable origin and wholly worthless in syphilis, others consisting of one form or another of mercury and possessing few or no advantages over the older and better known official mercurials, we are also daily confronted with advertisements which disgrace our boasted civilization in that they seek to persuade the deluded victims to palter with the useless nostrums in the vain effort to treat themselves.

Mercury and the Mercurials.

HYDRARGYRUM.—U. S.—Mercury, or quicksilver, has been known from remote antiquity, and from the earliest times has played an important part, not alone in the industries, arts and superstitions, but also in the medical practices of the people who are acquainted with it.

Even at present, this substance, in the form of preparations produced by mechanical subdivision of the mercury, is widely used for external application as well as for internal administration. Several of the preparations of mercury have been mentioned under other headings, and we shall content ourselves, therefore, with recounting a few of the salient features of these several substances.

HYDRARGYRUM CUM CRETA.—U. S.—Mercury with chalk, also known as gray powder, represents 38 per cent. of metallic mercury, with clarified honey and prepared chalk.

Average dose: 0.25 gm. (4 grains).

MASSA HYDRARGYRI.—U. S.—Mass of mercury, better known as blue mass, contains 33 per cent. of metallic mercury, with glycyrrhiza, althæa, glycerin and honey of roses. An analogous preparation without the glycerin is frequently found in the shops under the somewhat incongruous title, "Powdered Blue Mass."

Average dose: 0.25 gm. (4 grains).

The mass of mercury and the mercury with chalk are widely used as mild mercurials and are especially popular for use with children.

Probably the most widely used as well as the most popular of all the preparations of mercury as an antisyphilitic is:

HYDRARGYRI IODIDUM FLAVUM.—U. S.—Yellow mercurous iodid occurs as a bright yellow, amorphous powder, without odor or taste, and is practically insoluble in water and in alcohol.

Average dose: 0.01 gm. (10 mg. 1/5 grain).

HYDRARGYRI IODIDUM RUBRUM.—U. S.—Red mercuric iodid occurs as a scarlet-red, amorphous powder that is nearly insoluble in water, but soluble in 116 parts of alcohol; it is also soluble in solutions of the soluble iodids and in solution of mercuric chlorid.

Average dose: 0.003 gm. (3 mg. 1/20 grain).

HYDRARGYRI CHLORIDUM CORROSIVUM.—U. S.—Corrosive mercuric chlorid, more popularly known as corrosive sublimate, has been used by the Chinese from a very early period. It was used by the early Arabian physicians, and a process for its production was described by Geber in the eighth century.

Mercuric chlorid occurs as colorless, rhombic crystals or crystalline masses, or, more frequently, as a white powder, and is odorless, but has an acrid and persistent metallic taste. It is soluble in about thirteen parts of water and in five parts of alcohol, more freely soluble in solutions of the alkaline chlorids.

Average dose: 0.003 gm. (3mg. 1/20 grain).

HYDRARGYRI CHLORIDUM MITE.—U. S.—Mild mercurous chlorid, better known as calomel, has been known to some of the Eastern people from a very early period. It appears to have been introduced in Europe about the beginning of the seventeenth century. It occurs as a heavy white powder, without odor and practically without taste, and is insoluble in water and in alcohol.

Average dose as an alterative: 0.05 gm. (1 grain).

There are several additional compounds of mercury, but as they are not used for internal administration they need not be enumerated in this connection.

Uses of Mercurials.

Since the use of mercury as an alterative is largely limited to those conditions resulting from syphilis, either acquired or congenital, we shall at present confine ourselves to discussing its employment in this way.

The pathology of syphilis is very often so obscure that it should be treated by the specialist when possible, and the following is intended for the general practitioner who finds himself compelled to undertake the treatment of such cases.

There are many distinct symptoms that are manifested by patients with a syphilitic history which fail to respond to the sons otherwise healthy), but which at once disappear when mercury is given.

Many authorities are opposed to any form of constitutional treatment for the first stage of syphilis because we have no specific, and the treatment may mask or even prevent the appearance of those symptoms which render the diagnosis absolutely positive, without preventing the ultimate effects of the disease, thus condemning the patient to the hardships of a long and painful course of treatment without positive knowledge of its necessity. Others rely on their ability to diagnose syphilis by the chancre and the history of the case, and proceed at once to the use of mercury.

Inasmuch as it is supposed that mercury has comparatively little immediate influence on the course of the disease at this time, we should be very sure of the correctness of our diagnosis before beginning a course of treatment which, to be effective, must be continued for many months, and is in itself not free from danger to the patient's health.

When the history of the case, together with the chancre, renders an immediate diagnosis certain, treatment should be instituted at once.

All mercurials are irritant when dissolved and there are serious objections to all the different available methods of administration. Chief among these objections is the disturbance of digestion, which is not wholly obviated even when the mercury is injected hypodermically or applied by inunction.

Diarrhea is often a troublesome result, for which opium is advised, but the evils attending its use are obvious and its presence should always be suspected in nostrums containing well-known mercurials that are advertised as being guaranteed not to cause diarrhea or other gastric disturbances. Mercury is eliminated by all the channels of excretion and the kidneys not infrequently suffer serious injury. It follows that we must try to find the method best suited to the individual case, and attention is directed to the following means of administration with some of the objections to be guarded against or at least kept in mind:

It is generally agreed that since there is no essential difference between the action of the various organic and inorganic salts of mercury in syphilitic conditions, we should be guided in our choice of agent by the method of administration which experience teaches us to be best suited to the individual case. If the digestion suffers from internal administration of mercurials, intramuscular injections may be tried; if these are too painful, inunction may be resorted to; but whatever method is followed we must be alert for the appearance of untoward effects and the diet must be the object of especial attention, one being selected which is nutritious while it is easily digested.

The mercurials are to be avoided or used only with great caution in cachexia due to other causes than syphilis, as their tendency to disturb digestion may increase the trouble.

They must be used only with the greatest caution in acute nephritis, but they seem to be less deleterious in the chronic form, though here, too, their action must be carefully observed.

Mercury is particularly potent for harm in pregnancy, especially in the latter months; abortion may occur or the child may suffer from mercurial poisoning.

For internal use either mercurous or mercuric iodid is usually preferred. The combination of mercuric chlorid with potassium iodid merely means the giving of mercuric and potassium iodids, as the reaction occurs as soon as the two substances are brought into contact. When the mercuric chlorid is used it is best given alone, in dilute solution, as it is incompatible with a great many substances.

Mercuric iodid may be given as follows:

℞. Hydrargyri chloridi cor.....gr. iii		20
Potassii iodidi.....gr. x		60
Aquæ dest., q. s. ad.....f.℥iii	100	

M. Sig.: Ten drops in water after each meal. Increase each dose daily by one drop until symptoms of mercurialism are noted, then reduce to one-half.

This is not given as an example of the so-called mixed treatment, the dose of potassium iodid being entirely too small to be effective.

An example of a prescription for mixed treatment would be as follows:

℞. Hydrargyri chloridi cor.....gr. i		06
Potassii iodidi .....℥ii		8
Aquæ dest., q. s. ad.....f.℥iii	100	

M. Sig.: One teaspoonful after each meal.

The object of giving the mercurials after meals is to insure the protection of the stomach, which the presence of food affords, against the irritant action of the metal.

The menstruum or diluent for the prescription for mixed treatment may be varied in a number of ways. The water may be substituted by any one of the medicated waters by elixir adjuvans, aromatic elixir, compound tincture of gentian, compound syrup of sarsaparilla, or by a mixture of one or more of these vehicles; the most important point to be guarded against is the attempt to combine the potassium and mercuric iodid with alkaloids in solution, as the mixture of potassium and mercuric iodids is one of the most effective of precipitants for alkaloids.

The characteristic effects of mercury are to be carefully watched for and when the gums become slightly tender the dose is to be reduced somewhat in amount and given but twice a day—after the morning and evening meals. It would be well to wash down the dose with milk, the proteid of which will serve to protect the stomach against the irritant action of the mercury.

Mercurous iodid is not so corrosive as the mercuric, or red iodid, and it is often given in pill form with some colloidal substance, such as extract of gentian.

The following is an example of the method of giving it in this way:

℞. Hydrargyri iodidi flav.....gr. vi | 40
Extracti gentianæ.....gr. lx | 4

M. Fiat pilulæ No. lx. Sig.: One pill after eating.

This dose may be gradually increased by giving two pills after the mid-day meal, then two twice and finally three times a day until the symptoms of mercurialism mentioned above are seen. The dose is then reduced, as in the case of mercuric iodid, and given after the principal meals.

The mild mercurous chlorid, or calomel, may be used, but it is so insoluble that it is impossible to regulate the amount that is absorbed. Next to the administration by the mouth, the intramuscular injection is to be preferred, but it causes great pain and may result in abscess unless caution is observed. The addition of cocain hydrochlorid has been recommended by some authorities, but we should bear in mind the danger of forming a habit which is, if anything, even more terrible than syphilis.

The injection should be made by the physician, as the patient can not be trusted to do it satisfactorily.

Eight milligrams (one-eighth of a grain) of mercuric chlorid, or of the unofficial mercuric salicylate,[1] is dissolved in about ten minims of normal saline solution and injected deeply into the gluteal muscle, care being taken to avoid the spot which supports the body when the patient is seated. The part should then be massaged gently and an icebag or cold compress applied to relieve pain.

The injections may be repeated two or three times a week. The inunction method is very commonly employed in the establishments at Hot Springs, Ark., where many syphilitics are treated.

The inunction may be done as follows: After inducing diaphoresis, 3 grams (about 45 grains) of mercurial ointment are rubbed into the skin, not on it, daily. As this must be applied to a rather large extent of surface it is customary to select six regions which are utilized on successive days, returning on the seventh day to the first region. These are the adductor surfaces of the thighs (the most convenient when the patient is to rub the ointment into his person), the armpits and the regions just below, extending anteriorly, and the subscapular regions of each side.

The ointments of the oxids of mercury and the oleate of mercury are more irritant than the mercurial ointment or the blue ointment, as the diluted mercurial ointment is now called.

Too much stress can not be placed on the necessity of giving close attention to the various bodily functions during the mercurial treatment to maintain the appetite and digestion unimpaired, to regulate the bowels and to secure scrupulous cleanliness of the body. The mouth should be the object of especial attention; carious teeth should be filled and the mouth and teeth kept thoroughly cleansed.

1. Six grains (0.4 gms.) of mercuric chlorid to the fluid ounce (30 c.c.) will equal ⅛ grain (8 milligrams) in ten minims.

The Iodids.

The use of the iodids, like that of mercury, is well established on clinical evidence and we can only speculate as to the way in which it produces its effects in syphilis, chronic rheumatism and asthma.

OFFICIAL PREPARATIONS.

IODUM.—U. S.—Iodin occurs as bluish-black rhombic plates that have a metallic luster, a distinctive odor and a sharp and acrid taste. It is only slightly soluble (1/5,000) in water, but is readily soluble in ten parts of alcohol. It is also soluble in an aqueous solution of potassium or of sodium iodid.

Iodin was discovered about 1812 by Courtois, a French manufacturing chemist, but it was not used in medicine until after 1820, when its medicinal virtues were first made known by Dr. Coindet, Sr., of Geneva.

Average dose: 0.005 gm. (5 mg. 1/10 grain).

LIQUOR IODI COMPOSITUS.—U. S.—Compound solution of iodin contains 5 per cent. of iodin and 10 per cent. of potassium iodid in distilled water.

Average dose: 0.20 c.c. (3 minims).

TINCTURA IODI.—U. S.—Tincture of iodin, as now official, represents an alcoholic solution of 7 per cent. of iodin and 5 per cent. of potassium iodid. The resulting tincture is freely miscible with water and with alcohol.

Average dose: 0.10 c.c. (1½ minims).

ACIDUM HYDRIODICUM DILUTUM.—U. S.—This is a new addition to the Pharmacopeia and is intended primarily for the preparation of the syrup of hydriodic acid. It should contain not less than 10 per cent. by weight of the absolute acid.

Average dose: 0.50 c.c. (8 minims).

SYRUPUS ACIDI HYDRIODICI.—U. S.—This is a clear, colorless, syrupy liquid that contains about 1 per cent. of absolute hydriodic acid.

Average dose: 4 c.c. (1 fluidram).

Attention may here be called to the fact that some of the manufacturers of so-called permanent syrup of hydriodic acid have taken advantage of the fact that glycerin is less susceptible to chemic change with hydriodic acid than syrup, and are, therefore, offering a glycerite of hydriodic acid under the name of syrup. While it can not be definitely proved that this substitution is a dangerous practice, it is, nevertheless, one of the little dishonesties that are so frequent in other lines of trade and should not be countenanced in connection with the production or the use of medicinal substances.

SYRUPUS FERRI IODIDI.—U. S.—This syrup, in harmony with the Brussels conference agreement, now contains about 5 per cent., by weight, of ferrous iodid.

Average dose: 1 c.c. (15 minims).

The official salts of iodin are all freely soluble in water and are also soluble in alcohol and alcoholic liquids. They are, in the order of their popularity and use:

POTASSII IODIDUM.—U. S.

SODII IODIDUM.—U. S.

STRONTII IODIDUM.—U. S.

Average dose of any of the above: 0.50 gm. (7½ grains).

AMMONII IODIDUM.—U. S.

Average dose: 0.25 gm. (4 grains).

While mercury is employed in all stages of syphilis, but is most useful in the second stage, the iodids are employed in the second and third stages, but find their greatest field of usefulness in the third. The iodids enjoy a peculiar reputation in the treatment of those symptoms of tertiary syphilis, such as periostitis, which are manifested in connection with the bones.

Bronchitis, in those who suffer with a rheumatic or gouty diathesis, often shows greater improvement under the influence of this drug than with any other treatment.

The iodids are rarely used alone in the second stage of syphilis, but in combination with mercury, known as the mixed treatment, already referred to, they appear to be of value.

There can be no doubt of the usefulness of the iodids in relieving the symptoms occurring in the third stage of syphilis, and we have few therapeutic facts which are better attested.

The saturated solution of potassium iodid is, perhaps, the most commonly used form of administration.

The preparation of this may be entrusted to the pharmacist or it may be ordered as follows:

℞. Potassii iodidi .....ʒi 30
Aquæ dest., q. s. ad.....f. ʒi 30
M. Ft. solut. Sig.: Five drops after each meal, the dose to be increased by one drop each day.

The increase in the amount to be taken may be continued until the symptoms of iodism arise or until sixty or more drops are taken daily.

The patient is to be instructed as to the symptoms to be expected, such as pain in the region of the parotid gland, etc.

We are as far from being able to explain the action of the iodids in chronic rheumatism and asthma as in syphilis, but their usefulness is indisputable and unquestioned.

It is of little consequence whether we choose potassium or one of the other inorganic iodids or an organic preparation. Potassium iodid has long been the most popular of all of the available preparations and will probably continue to be the most useful or, at least, the most frequently used.

Thyroid Gland.

When it was found that the feeding of thyroid substances would obviate the symptoms which ordinarily follow the removal of that gland, the suggestion was made that it might be effective in combating the symptoms associated with disease of the gland. This was found to be true, and the fact that the substance is effective when given by the stomach at once suggested that there must be some active principle formed in the gland. This principle, called iodothyrin, containing 9.3 per cent of iodin, possesses the same therapeutic properties as the gland substance; under its uses a great increase in metabolism occurs, superfluous fat disappears and an increased combustion of proteid takes place, explaining its use in obesity and the necessity for a diet rich in proteid when this substance is used for such conditions as myxedema.

GLANDULÆ THYROIDEÆ SICCÆ.—U. S.—Dessicated thyroid gland is officially described as "the cleaned, dried and powdered thyroid glands of the sheep, freed from fat." It occurs as a yellowish amorphous powder, having a peculiar odor; it contains the active ingredients of the thyroid tissue. It is partially soluble in water.

Average dose: 0.25 gm. (4 grains).

Thyroid gland or iodothyrin is indicated in obesity and after removal of the thyroid or when the latter, through disease, fails to function properly, as in myxedema and in hypoplastic follicular goiter.

NOTE.—In THE JOURNAL, April 14, page 1107, in Chapter 16 of the special article on "The Pharmacopeia and the Physician," the average dose of aqua camphoræ was given as 1 c.c. instead of 8 c.c. (2 fluidrams).

Clinical Note

EMPYEMA DUE TO THE INFLUENZA BACILLUS.*

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Empyema due to the influenza bacillus is probably of more common occurrence than is generally believed. Last year Boggs[1] reported from this clinic the only case found in the literature in which this organism has been demonstrated. I give below an abstract of this case and report a second case, in which I obtained the influenza bacillus in pure culture from the pus from the pleural cavity.

CASE 1.—(Bogg's case). A. B., male, white, aged 60, a tailor, was admitted to the hospital March 1, 1905. None of his family had had tuberculosis.

History.—The patient had always been well, except for a chronic cough. His present illness began about one year before admission, with a severe attack of bronchitis; at this time the expectoration was very profuse and he spat a little blood; occasionally he had fever and sweats. He had not been quite well since this attack and four weeks before admission his condition became much worse. The chief complaints on entering the hospital were pain in the side and night sweats.

Examination.—On examination he was found to have a diffuse bronchitis and a small amount of fluid in the left pleural cavity. This fluid, removed by aspiration, was clear and yielded no growth or ordinary media. The patient at this time had an irregular fever and sweats. His sputum was abundant, tenacious, mucopurulent and blood-streaked, and from it was grown *Bacillus influenza* in pure culture. The patient was discharged on request, not much improved. He was re-admitted eighteen days later, feebler and with more fever and drenching sweats. There were signs of a pleural effusion and small amounts of bloody fluid were withdrawn on several occasions; this was not saved for cultures. He had at this time a moderate leucocytosis. Two weeks after his admission pus was obtained from the pleural cavity and from this influenza bacilli grew in pure culture.

Treatment.—The patient was transferred to the surgical side. At operation the pleura was found much thickened and a considerable amount of grayish, odorless pus was evacuated. There was rapid improvement.

CASE 2.—L. H., male, white, aged 23, a saw-mill hand, was admitted to the hospital Nov. 14, 1905, complaining of "pain in right side, cough and night sweats."

History.—There was no tuberculosis in his family and he had always been healthy. As a child he had had measles, chickenpox and whooping cough; he had not had pneumonia, had never had a chronic cough or an hemoptysis. So far as he knew, he had never suffered from any cardiovascular or gastrointestinal disease. His work was moderately heavy and in a saw mill, where he was much exposed to the weather.

Present Illness.—The patient had been perfectly well up to March 1, 1905. On March 2, eight months before admission, he caught cold after exposure and had "grip" for five days; he was then up and around for eleven days, but did not feel well enough to return to his work. On March 13, he was awakened by a sharp pain in the right side of his chest; the pain became very severe and required morphin. He grew rapidly worse, became delirious, and remained so for two weeks. About four weeks after the onset he began to have cough, which was worse on lying down; he became short of breath and had to sleep in a sitting posture. About this time also he began to have drenching night sweats. After being ill for two months his right chest was aspirated and a pint of thick creamy fluid was obtained. This relieved the dyspnea and cough for a short time. Three weeks later paracentesis was tried again, but unsuccessfully. The cough, which was worse at night, gradually grew better. He had no hemoptysis at any time. On admission the chief complaint was of night sweats.

Examination.—Aside from the thorax no abnormality was made out. Examination of the chest showed signs of a moderate effusion into the right pleural cavity. The heart was not displaced. There was no anemia; the leucocytes were 9000. His pulse was 72 and the temperature ranged from 96 to 98.2 F. An exploratory needle was introduced and 15 cc. of a thick yellowish green pus obtained.

Treatment.—The man was transferred to the surgical side for immediate operation. The eighth, ninth and tenth ribs were resected and about 600 cc. of greenish pus evacuated. The cavity showed but slight tendency to collapse and on leaving the hospital he had rather a deep sinus, which discharged freely.

Microscopic Examination.—The report of the microscopic examination of the tissue removed is as follows: "Pleura lined with a hemorrhagic granulation tissue; no evidence of tuberculosis."

Bacteriologic Examination.—In stained smears of the pus obtained by aspiration were seen pus cells, much granular detritus and a few influenza-like forms. From this pus, agar plates, bouillon, glycerin agar and human blood agar slants were inoculated. No growth was obtained except on the blood agar. After twenty-four hours there appeared on this medium fairly numerous, clear, dewy, discrete pinpoint colonies, which were just visible. Transfers were made repeatedly to all the

* From the Medical Clinic of the Johns Hopkins Hospital.

1. Boggs: "The Influenza Bacillus in Bronchiectasis." Amer. Jour. Med. Sciences, Philadelphia and New York., 1905, vol. cxxx, pp. 902-911.

usual media, but no growth was ever obtained except on blood agar. On this, the organism grew fairly well and was kept growing for two months. The organism was a very minute bacillus with a tendency to polar staining; it often seemed constricted at its middle and often looked like a small diplococcus. It was non-motile. Involution forms appeared after several days' growth, long chains, resembling streptococci, and long thread-like filaments. This bacillus was best stained with dilute carbol fuchsin; it stained but feebly with methylen blue; it was Gram-negative. It corresponded in every particular, therefore, with the influenza bacillus described by Pfeiffer.[2]

These two cases are strong proof that Pfeiffer's bacillus may cause an empyema, and were cultures made systematically on the proper medium it is likely that this organism would be found to be the cause of not a few cases of "sterile pus" in the pleural cavity.

New Appliance

A CONVENIENT BURETTE APPARATUS

FOR USE IN THE CHEMICAL EXAMINATION OF THE GASTRIC CONTENTS.

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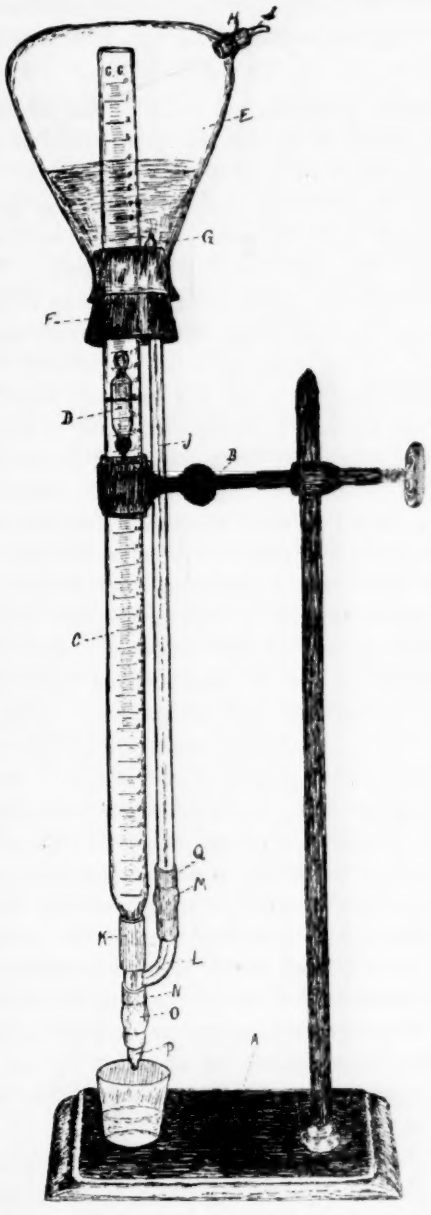
The growing importance of the chemical examination of the gastric contents as an aid to diagnosis renders it important that the up-to-date physician have such appliances at his command that this may be accomplished with the least possible waste of time and at the least possible expense.

With this fact in view I present the following description of a burette apparatus for decinormal sodium hydrate which I have found convenient for the titration of gastric contents:

The device consists of an ordinary burette stand (A), a burette clamp the jaws of which are covered by cork or rubber (B), a 50 c.c. burette (C) graduated in tenths, and fitted with a float (D). Through one of the openings of a two-hole soft rubber stopper No. 4 (F) is thrust the upper end of the burette in such a manner that the top of the burette projects above the stopper about four or five inches and the small end of the stopper is toward the top of the burette. Through the other opening in the stopper is thrust the end of a plain glass tube about one-fourth inch in diameter (J) drawn out by heating in a flame to a point (G), the opening of which is about a millimeter in diameter. The length of the tube should be that of the burette from this point to the bottom. The stopper thus equipped is placed in the neck of a 250 c.c. wide-mouthed Erlenmeyer flask (E), through one side of the bottom of which a hole (H) has been blown by heating it in the flame of a Bunsen burner until red and blowing vigorously, then heating again until the edges are smooth, and cooling slowly to prevent the glass becoming too brittle. In this opening, which is to serve as a vent and also as an opening for filling, is placed a small one-hole rubber stopper, through the opening of which is placed a small glass tube, drawn out so that the opening does not exceed one millimeter in diameter. This will allow sufficient air to enter and, if one wishes, it could be made to contain a little soda lime, thus freeing the air entering the flask from carbon dioxid and keeping the decinormal sodium hydrate absolutely accurate.

The bottom of the burette (C) and the free end of the glass tube (J) are connected by means of pieces of rubber tubing (Q-K) to a glass "T" tube (L), the stem of which is bent by heating in a Bunsen flame until it is parallel with one of the arms. The diameter of this tube is the same as the tube (J). Such a tube can be purchased for a small sum, but is rather difficult to make. Between the end of the long tube (J) and the T-tube (L) a space (M) is left about one-fourth inch long, in which a small piece of glass rod or a glass ball is placed to act as a valve. This can be made by heating a piece of glass rod one-fourth inch long and the diameter of the tubing until the edges are smooth.

To the free arm of the T-tube is attached by means of another piece of rubber tubing (N) a piece of glass tubing (P) three-fourths inch long and the same diameter as the T-tube and drawn out to a diameter of about two millimeters at the point. Between this tube (P) and the end of the T-tube a space (O) is left similar to that between the end of the long tube and the bent arm of the T-tube and similarly filled with a piece of glass rod or ball. By squeezing the rubber over the point (M) fluid flows from the flask into the burette and



can be stopped at any desired height, so that titration may always begin at the same point on the burette and by squeezing the rubber over the point (O) fluid is allowed to flow out of the burette in a very fine stream, which can be instantly shut off by releasing the rubber.

My idea of going so minutely into the description is that by following the directions any physician can make a similar apparatus, or at least have it made at a comparatively small expense. The decinormal sodium hydrate keeps very well in the reservoir (E) and is ready for use at a moment's notice, thus making the chemical analysis of gastric contents the work of a very few moments.

2. Pfeiffer: "De Aetiologie der Influenza, Ztschr. f. Hyg. u. Infektionskrankh.," Leipzig., 1893, vol. xiii, pp. 357-386. Pfeiffer und M. Beck: "Weitere Mittheilungen über den eneger der Influenza." Deuts. med. Wochft., 1892, vol. xviii, pp. 465-467.

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LEUCOCYTES AND OPSONINS IN THE DEFENSE OF THE BODY.

In certain infections the chief means of defense of the body seems to lie in the production of antitoxic substances that neutralize the poisons of the invading organisms. In a second class of infections no distinct soluble toxins are produced, hence no antitoxins are formed, and the resistance of the host seems to depend on the development of bactericidal substances that destroy the bacteria. There remains, however, a large and important group of infections, including especially tuberculosis and infections with the pus cocci, in which neither antitoxic nor bactericidal substances seem to be produced to defend the invaded host, and with these the chief source of resistance seems to lie in the action of the leucocytes. Until recently the exact significance of the leucocytes in the defense of the body against these infectious agents was a matter of uncertainty, and the source of much dispute. As one of the first on the field, Metchnikoff's view that the leucocytes were essential in the combat against the bacteria met wide favor and for a time almost universal acceptance. After a time it was found that the blood serum contained substances that injured or destroyed the bacteria, and it was urged that the leucocyte was more a scavenger than a defender, picking up only bacteria that had been injured by the serum and not attacking bacteria possessed of their full virulence. Between the upholders of these two views had been waged active combat for some years, with the production of many pieces of evidence speaking for one view or for the other, when the observation that the serum contains certain specific substances that prepare bacteria to be engulfed by leucocytes, showed the way to a harmonization of the existing differences.

These substances have been particularly studied by A. E. Wright, of London, who gave to them the name "opsonins" by which they are generally known; and in this country by Dr. Ludvig Hektoen and his associates. In this issue we publish Dr. Hektoen's review of the subject as given by him in the Middleton-Goldsmith lecture of the New York Pathological Society, and wish in this place to call attention to a few of the salient features of the article. Opsonins seem to be of very essential importance in the defense of the body, for without their presence leucocytes can not take up bacteria (with a very few exceptions). They act on the bacteria, rather than on the leucocytes, and seem to alter the physical or chemical properties of the bacteria in such a manner that it becomes possible for leucocytes to surround and to engulf them. Opsonins exist in normal serum to a certain extent, but are increased by immunizing against the bacteria in question, and they may also be important in the phagocytosis of red corpuscles by leucocytes and other cells. The increased power of phagocytosis observed in immunized animals is, therefore, not due to a stimulation of the leucocytes, as Metchnikoff believed, but to an effect of the serum on the bacteria. This opsonic power of the serum, however, is not the same as its bactericidal power, for bacteria may live and grow well in serum rich in opsonins; but if to such a mixture of bacteria and serum a sufficient number of leucocytes be added the bacteria are soon engulfed and destroyed, so that the mixture produces no growth on culture media and no infection when injected into animals.

This leaves little room for doubt that we must answer in the affirmative the long contested question: Can leucocytes take up and destroy living, virulent bacteria, i. e., are they actually an important agent in the defense of the body against infection? The power of the leucocyte in this direction is limited, however, for if the bacteria possess a certain degree of virulence they then successfully resist phagocytosis through two processes: one being the neutralization of the opsonins, the other a direct injury of the leucocytes by toxic substances.

Many points of great practical importance have been brought forward through the study of the opsonins. Thus, as Hektoen points out, the artificial production of leucocytosis can not be expected to accomplish much effect if there is a deficiency in opsonins, and the use of substances that injure opsonin (i. e., are negatively chemotactic) should be avoided. Wright has shown the variations of the opsonic power of the blood under various conditions and has given us simple means for determining this power. Furthermore, he has aroused new hopes of success in the treatment of disease by vaccination with minute quantities of bacterial substance. By carefully observing the opsonic power of the patient's blood and by modifying the vaccination process accordingly, it seems to be possible to keep this power at a maximum, with a corresponding increase of resistance to the infectious organism. Encouraging results have been obtained in tuberculosis and pus infections, and there exist good reasons for hoping that the usefulness of this method may be found to be both real and large.

SHOCK AS A CURATIVE AGENT.

One of the most interesting of the later developments of the unfortunate catastrophe at San Francisco has been the announcement that a certain number of persons who had been for some time confined strictly to their beds and who were considered, at least by themselves and their friends, to be suffering from incurable paralysis, as

a consequence of the shock have been restored to strength enough to walk and in some cases to apparently perfect health. In one case, the patient is reported to have been absolutely bedridden for over fifteen years, yet was so completely cured that he was able to help very shortly after the earthquake in the work of relief. The newspapers have made much of these cures and yet they will probably not appear so surprising to physicians. It is not an unusual thing in medical experience to have a patient who is suffering from hysterical paralysis frightened into activity by the occurrence of a fire or by a visit from burglars or some act of violence in his or more often her immediate neighborhood. The cure of hysterical mutism in the same way is an old-time tradition in medicine, of which Hippocrates has made mention.

What these cases illustrate is the wonderful power that the mind has over the body for good and ill. The original paralytic condition is due to the loss of control by the central nervous system over the muscles of locomotion. The restoration of control is brought about by the overpowering impulse of the will which reasserts co-ordination in spite of the inhibition of the neurotic condition. The earnest therapeutist can scarcely fail to be envious of Nature's methods and success in such cases. The great power for good that mental influence may have is thoroughly recognized, but sufficient efforts, as a rule, are not made to make use of it in such a degree as would place it among the important therapeutic agents. In recent years a definite effort has been made to systematize the influence of suggestion so as to bring mental sway into play, at least as an auxiliary in the treatment of many affections which, even though they are not entirely due to nervous conditions, have many neurotic elements.

As the result of the modern introspection, coupled with the half knowledge of things medical that has been rendered possible by a perverted activity of the printing press, there are but few serious ailments which are not complicated to some degree by neurotic symptoms. Even so serious an organic condition as apoplexy, during the course of improvement after the effects of the first shock have passed, may present definite neurotic or hysterical symptoms that are sure to delay convalescence. In woman particularly, bedriddenness may result and may continue for years, because apparently the hysterical condition will not allow the patient to gather enough courage to attempt ordinary movements. Even in such cases fright has been followed by a reflex response that made locomotion possible. Other intense emotional stresses, as religious feelings or maternal solicitude, produce similar results. Suggestion may play a like rôle. It would seem to be of first importance, then, that the medical lesson emphasized by so serious a calamity should not be lost, and that mental influences should come to have a more systematic place in our modern therapeutics.

If employed with proper confidence and with systematized individualization, this branch of therapeutics, as we perfectly pointed out,[1] has proved eminently helpful in the hands of experts and will undoubtedly accomplish much for the general practitioner who avails himself of it in the right spirit.

OLD-TIME MEDICAL AND SURGICAL ANTICIPATIONS.

It is so generally the custom to consider that medicine, as we know it at the present time, is entirely the result of nineteenth century investigation, that it is often forgotten that for many centuries intellectual men were at work in the European medical schools investigating and teaching truths in medicine and surgery. How many of our modern discoveries are really the refinding of forgotten truths may perhaps be most easily realized from a reading of Professor Allbutt's[2] address on the "Relations of Medicine and Surgery to the End of the Sixteenth Century," which was delivered at the St. Louis Congress of Arts and Science, in 1904, and which has recently been published. This book is a treasure house of the wonders of old-time medicine with definite reference to the works in which further details of information may be obtained.

It is not a little surprising for the modern, rather self-complacent student of medicine to learn that even in the thirteenth century there were original and independent observers in medicine and surgery who made discoveries of great importance. At that time there was no distinction between the physician and the surgeon and these great medical scholars were distinguished in both departments. Of one of the best known of these early writers on medicine, Guglielmo Salicetti, of Piacenza, Dr. Allbutt says:

"William Salicet fully recognized that surgery can not be learned from books alone. His surgery contains many case histories, for he rightly opined that good notes of cases are the soundest foundation of good practice; and in this opinion and method Lanfranc followed him. Salicet discovered that dropsy may be due to a 'durities renum'; he substituted the knife for the Arabist abuse of the cautery; he investigated the causes of the failure of healing by first intention; he described the danger of wounds of the neck; he sutured divided nerves; he forwarded the diagnosis of suppurative disease of the hip; and he referred chancre and phagedena to *coitus cum meretrice.*"

These are indeed some surprising anticipations of things often said to be quite typically modern. Usually the first hint of the connection between kidney disease and dropsy is thought to be less than a century old and as for union by first intention that is ordinarily considered a matter of scarcely more than the last quarter of a century. At least one of Salicet's pupils went

1. THE JOURNAL A. M. A., March 31, 1906, p. 958.
2. "The Historical Relations of Medicine and Surgery to the end of the Sixteenth Century," T. Clifford Allbutt, Regis Professor of Physic in the University of Cambridge. London and New York: Macmillan & Co. 1905.

even farther and added new ideas of the greatest significance to practical surgery in a book of which Allbutt says:

"Lanfranc's 'Chirurgia Magna' was a great work, written by a reverent but independent follower of Salicet. He distinguished between venous and arterial hemorrhage and used styptics (rabbit's fur, aloes, and white of egg, which was a popular styptic in elder surgery), digital compression for an hour, or in severe cases ligature. His chapter on injuries of the head is one of the classics of medieval surgery. Clerk as he was, Lanfranc, nevertheless, saw but the more clearly the danger of separating surgery from medicine."

It is one of the favorite ideas of Allbutt often emphasized and recently taken up and favorably commented by Osler, that medicine should not be separated from surgery and that the internist should take every opportunity that offered to see the condition of organs within the body during life as it can be obtained only during surgical operations. Such a view is quite different from the one obtained at autopsies and is likely to prove supremely helpful for diagnostic purposes. Most of these distinguished physicians of the middle ages emphasize just this necessity for the physician taking surgical opportunities to obtain surer and more definite knowledge.

The teaching of at least one other distinguished member of the medical profession in those early times deserves notice. Henry Mondeville, who taught at Paris, was a student of Lanfranc and introduced new methods of wound treatment. Briefly summarized, they were as follows: "Wash the wound scrupulously from all foreign matter, use no probes, no tents except under special circumstances, apply no oily or irritant materials; avoid the formation of pus, which is not a stage of healing, but of complication." "Wounds dry much better before suppuration," to use his exact words, "than after it." It seems unfortunate that such clear-headed results of investigation should have been lost to mankind for nearly seven centuries and the fact is a warning of the instability of even our modern scientific progress, unless care is exercised not to let theory replace observation in the domain of medicine.

THE CALIFORNIA CATACLYSM; AN APPEAL.

Naturally, as time passes, the newspapers are devoting less and less space to the California cataclysm, and the emotional phase of the public mind is disappearing—the public is already forgetting. So also the excitement of those on the spot is supplanted by a grim realization of the terrible conditions that have resulted from the combination of earthquake and fire; to a realization of the hardships, the ordeals and the problems before them. While we who are away are forgetting, those who are there are realizing more and more the magnitude of the calamity. They are realizing, too, the deprivation of all of the luxuries and many of the things that had been heretofore considered necessaries of life. As Dr. Philip Mills Jones says, in a letter just received, "San Francisco seems more horrible to me every time I see it."

As more definite information reaches us it becomes more evident that the worst has not been told; that the actual needs of many physicians in San Francisco are such that they must have help to put them on their feet. This applies to many who were in good circumstances, who had well-furnished homes and offices and good practices. All are gone, even the practices that they had built up. But the sufferers are men who are not asking for aid, and will not ask; they are not of that kind. Yet others, who are there temporarily and who know the conditions, are asking in their behalf. An army surgeon, who prefers that his name be not mentioned, says: "Use your influence to get the doctors all over the country to aid the men here to get started; the condition of hundreds of physicians here is truly pitiful, but they don't complain." Dr. Kenneth A. J. Mackenzie, of Portland, Oregon, who has been in San Francisco since the earthquake, in a telegram, says: "Please appeal through THE JOURNAL columns to best traditions of our profession to aid brethren stripped of all property and means of revenue and support."

We again, therefore, appeal to our readers and to the profession of the country for contributions to the relief of our brethren in San Francisco and other California points. There is hardly a physician who can not contribute at least one dollar. The various churches, lodges, etc., are raising special funds for their own particular people; let us not allow our brethren to suffer more than is necessary. As is noted in another column, instruments, books, etc., are needed. Books especially will be welcome. The libraries of the San Francisco and the Sonoma County medical societies are destroyed. In the near future we must undertake to help them get another, but there is plenty of time for this. Meanwhile, we repeat that the Board of Trustees of the American Medical Association authorized THE JOURNAL to solicit subscriptions for this cause to accommodate those who might not know how to send their contributions. Some individuals and societies may find it more convenient or more satisfactory to send their contributions direct. All that is desired is that every physician who is able shall contribute something for the California profession in need.

SODIUM CITRATE AS AN ADDITION TO MILK MIXTURES FOR NURSING INFANTS.

It will not be denied that a great advance has been made in recent years in the successful hand-feeding of infants deprived, for one reason or another, of their natural nourishment, mother's milk. While the milk from some other animals approaches more nearly in composition that of nursing women, still, for practical purposes, cow's milk, variously modified, is the most serviceable substitute. By the method of percentage feeding

it has become possible to determine and to adjust the proportions of the constituents in milk mixtures for nursing infants in such a manner that the amounts of water, proteid, fat, sugar and mineral matter shall closely approximate the proportions of these in healthy mother's milk. Two facts, however, need to be borne in mind in this connection. The first is that there are differences in the quality as well as in the quantity of the ingredients of cow's and mother's milk, respectively, and, second, that the digestive power and capacity differ somewhat in different children, and that within certain limits the healthy child is capable of adapting itself to variations in the constitution of the milk supplied to it as food, whether from its mother or elsewhere.

As is well known, cow's milk as compared with mother's milk contains too much proteid and too little sugar, and in adding water for the purpose of diluting the former the fat strength also is reduced, so that cream is added to restore the proper proportion. Of the proteids of mother's milk, albumin and casein are present in approximately equal proportions, while in cow's milk the proportion is about one to six. Moreover, the casein of cow's milk forms a denser and larger curd, and is accordingly more difficult of digestion than the casein of human milk. Further, the latter has an acid reaction, while cow's milk has an alkaline reaction. Lime-water is commonly used for the double purpose of neutralizing the acidity of cow's milk and making a finer subdivision of the curd, but the best diluent is whey, which contains many desirable chemical constituents.

Within recent years the use of sodium citrate has been recommended for the purpose of lessening the size and the density of the curd yielded by the casein of cow's milk and thereby increasing its digestibility. A working formula consists in the addition of one grain of sodium citrate to each ounce of milk diluted with an equal amount of water. In a recent communication Dr. W. H. Wynn[1] reports highly satisfactory results in 69 cases from the mode of procedure described. Most of the infants suffered from milk-dyspepsia. In others the nutrition was impaired from the use of dilute milk mixtures. Four infants with scurvy were subjected to the treatment, and it was employed in nine cases in which it became necessary to wean healthy infants. It is suggested that the method may prove applicable also in the cases of adults requiring a milk diet from one cause or other. Results of a similarly favorable character were reported at the last meeting of the American Pediatric Society by Dr. Harry L. K. Shaw,[2] who employed sodium citrate as an addition to milk mixtures in 22 cases.

SURGERY FOR CRIMINALITY.

One or two stories have been recently circulated in the newspaper press of cases of marked moral reformation following operative procedures on the brain, and the usual tendency to generalization from such has been very much in evidence. Some of the newspaper writers see a prospect ahead, and not in the very distant future, when criminality will be considered a surgical disease and reform methods take this direction more or less exclusively. There is no doubt that if surgery was carried sufficiently far a good deal of crime could be prevented. Amputation of a pickpocket's fingers, for example, would check his operations at least for a while, and it is easy to imagine other reforms of the same character. It is safe to say, also, that any very extensive application of brain surgery on the criminal class would be likely to diminish their number, but the old-fashioned methods of reform by moral suasion and measures based on the theory of human responsibility will probably be the ones to be relied on in the future as in the past.

1. Birmingham Med. Rev., March, 1906, p. 123.
2. Arch. of Ped., March, 1906, p. 161.

THE PROGNOSIS OF PULMONARY TUBERCULOSIS.

While both clinical and pathologic evidence are not wanting in support of the curability of tuberculosis of the lungs, it is difficult to foresee the outcome in any given case. It were even better, perhaps, to speak of recovery rather than cure under such circumstances. All that the physician can do—apart, of course, from removing sources of infection and preventing dissemination of infective material—is to provide conditions favorable to subsidence of the tuberculous process and involution of the tuberculous lesions. The result after all, will be determined by certain qualities inherent in the individual, and these are beyond the range of clinical estimation, but that such defensive mechanisms can be fortified there is no doubt. The main factors contributing to this end are comprised in an abundance of pure, fresh air and a generous supply of easily digestible, nutritious food, in conjunction with rest and exercise in proper apportionment. By the adoption of these means, the disease can often be arrested, in fact it not rarely undergoes spontaneous arrest, even in the absence of special attention to these matters, and with the observance of proper precautions the arrest can be made permanent. In a discussion of the prognosis of pulmonary tuberculosis, in the course of a paper read recently before the Bristol Medico-Chirurgical Society, Dr. J. J. S. Lucas[1] wisely emphasizes the fact that a tuberculous patient should never consider himself sound, at least not for some years, even after the disappearance of all symptoms. The appearance of the patient, the shape of his chest and the family history are of the greatest importance in prognosis. Of early symptoms hemoptysis by itself is rather a good sign, while dyspepsia is a bad one. The presence of fever at a single examination does not, as a rule, have any bearing on the prognosis, but persistent elevation of evening temperature for some time is of unfavorable significance. A rapid pulse is one of the worst omens. Of laryngeal complications, ulceration of the vocal bands alone is of little significance; swelling in the larynx is of much more serious import. Under these conditions the physical signs referable to the lungs are often deceptive. The effect of treatment can be gauged only by the condition of the patient several months after he has been dismissed from the treatment and has taken up duties he intends to pursue for the remainder of his life.

1. Bristol Medico-Chirurgical Review, March, 1906, p. 12.

Medical News

ALABAMA.

Commencement.—The Alabama Medical College held its forty-first annual commencement at the Mobile Theater, April 9, at which Dr. J. W. Abercrombie, president of the University of Alabama, conferred the degrees, and Dr. William H. Sanders, state health officer, delivered the charge to the graduating class. Dr. George A. Ketchum, the dean, made his annual report, and Dr. J. H. Penniman of Philadelphia, dean of the University of Pennsylvania, delivered the doctorate address.

ARIZONA.

Certificate Issued.—E. A. Hall, Prescott, whose certificate to practice was withheld by the Territorial Board of Medical Examiners last summer, and who began mandamus proceedings against the board to compel the issuance of the certificate, has been issued a certificate by the board, the cause for which it was withheld not having been confirmed.

Personal.—Dr. Claude Thompson has been elected chairman, and Dr. O. C. Class, secretary, of the Phoenix board of health. ——Dr. William H. Ward, superintendent of the Territorial Asylum for the Insane, Phoenix, has resigned, and Dr. Ray Ferguson, Nogales, has succeeded to the position.——Dr. Henry Dietrich and family, Morenci, have started for a prolonged European trip.

ARKANSAS.

License Revoked.—For violation of the anti-drumming ordinance Dr. R. O. Williams, Hot Springs, was fined $100 and his license to practice medicine in the state was revoked, March 31.

Wins Appeal.—Dr. T. B. Rider, Hot Springs, who was recently fined $100 and whose license was revoked on account of alleged violation of the city anti-drumming ordinance, and who appealed his case to the circuit court, won the appeal and will continue to practice.

Emergency Hospital.—It has been announced that on and after May 1 the Emergency Hospital of the Iron Mountain Railway for the Arkansas Central and Valley divisions, for the Little Rock and Argenta terminals, and for the Baring Cross shops, will be located at Little Rock and will be under the charge of Dr. S. S. Stewart.

Commencement.—The twenty-seventh annual commencement of the University of Arkansas, Medical Department, Little Rock, was held April 12. Degrees were conferred on a class of 26 by the governor of Arkansas, and the annual address was delivered by the Hon. J. N. Tillman, Fayetteville, president of the university. The doctorate address was delivered by Dr. John R. Dibrell.

CONNECTICUT.

Ely Will Found.—The will of the late Dr. John S. Ely, New Haven, has been found and offered for probate. Dr. Ely left an estate appraised at about $150,000.

March Deaths.—During March, 1,477 deaths were reported to the State Board of Health, 244 more than in February, 100 less than in March of last year, and 37 more than the average mortality for the month of the five preceding years. The death rate for the month was equivalent to an annual death rate of 18 per 1,000. Infectious diseases caused 258 deaths, or 17.4 per cent. of the total mortality. Nervous diseases caused 210 deaths; pneumonia, 207; heart diseases, 136; tuberculosis, 126; accidents and violence, 82; bronchitis, 61; influenza, 28; diphtheria, 27; measles, 22; whooping cough, 17, and cerebrospinal meningitis, 15.

DISTRICT OF COLUMBIA.

Hospital Opened.—The Potomac Hospital and Training School was opened with proper exercises April 23. Dr. John P. Green delivered the principal address. Dr. Albert R. Collins is vice-president of the institution, and Dr. Harry J. Williams, secretary and medical director.

Wants Prescriptions in English.—A bill has been introduced into the House of Representatives by Representative Brownlow of Tennessee to require physicians in the District of Columbia and the territories to write prescriptions in English as well as in Latin, in order to avoid the mistakes said to be made by druggists.

Disease Prevention.—The commissioners of the district have forwarded to Congress, with a favorable recommendation, a bill for the prevention of scarlet fever, diphtheria, measles, whooping cough, chickenpox, cerebrospinal meningitis and typhoid fever. This bill calls for the compulsory report of all cases of the diseases mentioned and provides a severe penalty for violation.

Medical Association Officers.—At the annual meeting of the Medical Association of the District of Columbia, April 3, the following officers were elected: President, Dr. D. Olin Leech; vice-presidents, Drs. A. Barnes Hooe and Presley C. Hunt; secretary, Dr. Daniel W. Prentiss; treasurer, Dr. Frank Leach; censors, Drs. Louis Mackall, Sothoron Key and James A. Watson; delegate to the American Medical Association, Dr. George N. Acker, and alternate, Dr. George M. Kober.

GEORGIA.

Alumni Reorganized.—The alumni of the Medical Department of the University of Georgia, Augusta, reorganized April 19 with the following officers: President, Dr. J. Lawton Hiers, Savannah; vice-presidents, Drs. Sterling R. Gibson, Thomson, and W. W. Pilcher, Warrenton, and secretary and treasurer, Dr. Charles W. Crane, Augusta.

Personal.—Dr. J. T. Plunket has been elected a member of the board of trustees of the Medical College of Georgia, Augusta, vice Dr. De Saussure Ford, deceased.——Dr. Levi P. Hammond, Rome, has been elected physician of Floyd County, vice Dr. William A. Johnson, resigned.——Dr. J. Scott Todd, Atlanta, sustained a fracture of the collar bone by being thrown from his horse, April 12.

Wanted for Contempt of Court.—Dr. Millard B. MacAfee, Atlanta, who was arrested March 20 on a charge of violating the city ordinance by selling cocain, and who failed to appear for trial March 24, as ordered, was declared in contempt of court and a warrant was issued for his arrest. He was charged with selling cocain without a prescription, and also with prescribing cocain for certain of his customers and then filling the prescriptions himself.

College Commencements.—The annual commencement exercises of the Medical College of Georgia were held April 2, when a class of 31 was graduated. The addresses of the evening were given by Prof. David C. Barrow, acting chancellor of the university; the Right-Rev. Charles K. Nelson, bishop of Georgia, and Dr. T. D. Gunter.——The Atlanta School of Medicine on April 2 graduated a class of 21. Hon. Hooper Alexander was orator of the occasion, and diplomas were conferred by ex-Governor Norton.——The Atlanta College of Physicians and Surgeons held its fifty-second annual commencement, April 2, when a class of 52 was graduated. In the annual report made by Dr. William S. Elkin, dean of the faculty, it was announced that Andrew Carnegie had given $10,000 toward the erection of the new building, the cornerstone of which was laid April 6 and which is to cost $100,000.

ILLINOIS.

Fined for Misusing Mails.—Dr. Charles A. Nichols, Urbana, was convicted by a jury of using the mails for a scheme to defraud, and on April 27 was sentenced by United States District Judge Humphrey to pay a fine of $250 and costs, bringing the total up to $700, with imprisonment in jail until paid.

Coroner's Work for April.—During April the coroner of Cook County investigated 315 deaths, 137 of which were found to be from natural causes, 33 from railway accidents, 26 from suicide, 22 from falls, 18 from asphyxiation, 12 from drowning and 10 from burns and scalds. Nine homicides were reported during the month.

Special Train for State Society Meeting.—A special train for Springfield will leave Chicago via the Illinois Central Railroad Monday evening, May 14. A rate of one fare for the round trip will be made provided 150 can be secured. The names of those who intend to go should be sent to Dr. James H. Stowell, 103 State Street, at as early a date as possible that arrangements may be perfected.

Society Meetings.—Knox County Medical Society held its annual meeting in Galesburg, April 26, at which the following officers were elected: President, Dr. J. H. Brown, Rio; vice-president, Dr. George S. Chalmers, Galesburg; secretary and treasurer, Dr. George S. Bower, Galesburg; censor, Dr. William O'R. Bradley, Galesburg, and delegate to the State Medical Society, Dr. William H. Maley, Galesburg. The presidential address by Dr. Lawrence R. Ryan, Galesburg, was on the "Field of the Specialist," and Dr. J. F. Percy presented a paper on the "Borderland of Insanity." The meeting came to a fitting close with a banquet attended by both the medical and legal professions.——At the annual meeting of the Central Illinois Medical Society in Pana, April 24, the following officers

were elected: Dr. Frederick J. Eberspacher, Pana, president; Drs. Frank P. Auld, Shelbyville, and Wilbur C. Wood, Decatur, vice-presidents; Dr. Roscoe C. Danford, Pana, secretary, and Dr. John N. Nelms, Taylorville, treasurer.

Civil-Service Examinations.—Examinations for the medical staff of the Illinois Charitable Eye and Ear Infirmary, 227 West Adams Street, Chicago, will be held the latter part of this month by the Illinois Civil-Service Commission. There are now the following vacancies: One assistant ear surgeon, one assistant eye surgeon, one assistant pathologist, three internes.——Examinations for attendants in the hospitals for the insane will be held by the Illinois Civil-Service Commission the latter part of this month in various parts of the state. Male applicants must be between the ages of 21 and 45 years and must weigh not less than 155 pounds. Women should be between the ages of 18 and 45 years and weigh not less than 125 pounds. Men start at $25 per month, with board, lodging and laundry, and women at $18 per month. The communities producing the largest number of applicants will get the examinations. All applications should be addressed to Joseph C. Mason, chief examiner, Springfield, Ill.

Chicago.

Sentenced to Imprisonment.—Dr. A. Judson Booth, charged with mistreating young girls, was found guilty May 2 and sentenced to imprisonment for 18 years in the penitentiary.

Hospital License Revoked.—The governor, acting on the recommendation of the state home visitor for children, has revoked the license of Dr. George H. How, in charge of the Irene How Sanitarium.

Personal.—Prof. Dr. Trendelenburg, Leipzig, visited Chicago, May 11.——Dr. John T. Binkley has sailed for Italy.——Dr. J. A. Jerger, formerly interne in the Alexian Brothers' Hospital, has located in Waterloo, Iowa.

Cheaper Antitoxin.—The Memorial Institute for Infectious Diseases is said to be supplying the city with antitoxin at $1.50 per 3,000 units as against $5.25 for 3,000 units, the sum charged by the alleged antitoxin trust.

April Mortality.—The mortality for April was 2,770, equivalent to an annual death rate of 16.44 per 1,000. Pneumonia caused 548 deaths; consumption, 336; heart diseases, 211; Bright's disease, 194, and violence, including suicide, 170.

Farewell Dinner to Findley.—A faculty farewell dinner was given to Dr. Palmer Findley, assistant professor of gynecology and obstetrics, Rush Medical College, on April 26, at the Auditorium Annex, on the occasion of his departure from Chicago to take the chair of gynecology in the Medical Department of the University of Nebraska, Omaha.

Site for Hospital Secured.—Arrangements have been completed for the purchase of ground on Michigan Avenue, immediately north of the present site of St. Luke's Hospital, for the erection of the new building which is to cost $500,000. The site was secured for $145,000. The new building is to be six stories high and of fireproof brick construction throughout.

Communicable Diseases.—During April, 1,082 cases of communicable diseases were reported, as against 480 in April, 1905. The chief increases were in diphtheria, 273, or 80 more than the previous year; scarlet fever, 527, or 442 more than 1905, and measles, 196, an increase of 92. Two cases of imported smallpox were removed to the Isolation Hospital during last week.

Deaths of the Week.—The total deaths from all causes for the week ended May 5, were 593, or 28 less than the preceding week. The mortality is equal to an annual death rate of 15.09 per 1,000. Pneumonia still leads the death causes with 115 deaths, and is followed by consumption, with 75; Bright's disease, with 42; violence, including suicide, with 34; acute intestinal diseases, with 30; cancer, with 27; nervous diseases, with 21; bronchitis, with 20, and scarlet fever, with 17.

The First Four Months of the Year.—During the first four months of 1906 there were 229 more deaths reported than during the corresponding period of 1905, although the death rate is almost the same. Pneumonia caused during this period in 1905, 1,857 deaths, and in the corresponding period of 1906 only one less. Tuberculosis was responsible for 466 fewer deaths in 1906 than in 1905. There were also 11 fewer deaths from apoplexy; 143 from bronchitis; 41 from convulsions; 57 from influenza; 38 from smallpox; 29 from measles, and 131 from whooping cough less than in the corresponding period of 1905. There were, on the other hand, increases in death as follows: Nephritis, 37; cancer, 60; heart diseases, 60; nervous diseases, 54; diphtheria, 27; acute intestinal diseases, 71; scarlet fever, 134; typhoid fever, 21; violence other than suicide, 79, as compared with 1905.

Home for Destitute Crippled Children.—The Home for Destitute Crippled Children, of which Dr. John Ridlon is surgeon-in-charge, has outgrown its original quarters and has completed a new building, the total cost of which was about $40,000. Of this amount $25,000 was donated by Mrs. R. H. McElwee for the erection of the outpatient department, which is to be a memorial to her daughter. At a recent meeting of the board of trustees Dr. Frederick W. Belknap was appointed consulting pediatrician; Dr. Gilbert Bailey, assistant orthopedic surgeon, and Dr. Coleman G. Buford, attending surgeon. A resolution was adopted to the effect that ruptured children are to be considered crippled children, and that as soon as proper facilities have been added to the home for handling such cases, those needing operation will be admitted as house patients. An out-patient department for ruptured children was opened May 1 under the direction of Dr. Buford. A dispensary for orthopedic patients is open on Monday, Wednesday and Friday from 1 to 4 p. m., and for hernia cases on Tuesday and Friday from 9 to 10 a. m. The object of the latter department is to supply trusses to destitute ruptured children, and to educate parents in the proper application and maintenance of the trusses. It is estimated that under proper management about 75 per cent. of the patients under 4 years of age will recover from rupture without operation.

INDIANA.

Election of Officers.—The Ninth Councilor District Medical Society met at Frankfort May 1 and elected Dr. Charles Chittick, Frankfort, President; Dr. George F. Keiper, Lafayette, secretary, and Dr. Edgar Cox, Kokomo, treasurer.

Personal.—Dr. Arthur E. Vinton, Muncie, has started East and will spend the summer in Germany.——Dr. Charles P. Davis, Galena, who was operated on recently in Louisville, has resumed practice.——Dr. John T. Anderson, Swayzee, was seriously injured in a runaway accident, May 2, near his home. He was thrown out of his buggy and fractured several ribs.

Asks Postponement of Trial.—Dr. Charles L. Landfair, formerly a practitioner of Bluffton, who is serving a term in the state penitentiary in Michigan City on account of illegal medical practice, has written to the State Board of Medical Examination and Registration, asking that his trial by that body be postponed until after the expiration of his term of imprisonment.

District Society Meeting.—At the annual meeting of the Second District Medical Society, held in Vincennes, April 24, Dr. George Knapp of that city was elected president, and Dr. A. B. Knapp, secretary. Dr. H. M. Smith gave a historical talk on the Medical Association of Knox County, showing that more than 90 years ago there was a medical society in the county. The next meeting of the society will be held in Washington.

New College Incorporated.—The articles of incorporation for the State College of Physicians and Surgeons, a new school to be established in connection with the Indiana University, Bloomington, were filed with the secretary of the state, May 2. The trustees named in the incorporation papers are Judge Vinson Carter, Dr. Allison Maxwell, Dr. John F. Barnhill and W. C. Bobbs, Indianapolis; Dr. M. V. B. Newcomer, Tipton; Dr. Charles Stoltz, South Bend; Dr. Charles F. C. Hancock, Jeffersonville; Dr. John C. Sexton, Rushville, and Messrs. James D. Showers, Fred Matthews and Henry B. Gentry, Bloomington.

Approves of Medical College.—At a meeting of the Third Councilor District Society at West Baden, April 21, the following resolutions, introduced by Dr. David C. Peyton, Jeffersonville, relative to the recent merger of Indiana medical schools into the medical department of Purdue University, were adopted:

Resolved, That the Third District Medical Society cordially approves the union of these schools and hereby expresses its desire that the legislature shall ratify the same and thereby secure a permanent school of medicine under the control of Purdue and located at Indianapolis, where ample clinical and other facilities can be obtained; also

Resolved, That we approve the wisdom and self-sacrifice of the faculties of these three schools in uniting in donating to the state their combined efforts and their valuable property, which consists of a magnificent college building, thoroughly equipped and out of debt, and has an excellently organized, experienced and capable faculty.

March Diseases and Deaths.—During March tonsillitis was the most prevalent disease reported. Pneumonia was less prevalent than in the preceding month, and bronchitis stood third, followed by influenza, rheumatism, pleurisy, whooping cough, scarlet fever, typhoid fever, intermittent and remittent

fever, diarrhea, erysipelas, measles, diphtheria, smallpox, puerperal fever, peritonitis, typho-malarial fever, cerebrospinal meningitis, dysentery, cholera morbus and cholera infantum. Smallpox was reported epidemic in Allen County, where 38 cases occurred. In all 124 cases of smallpox were reported from 16 counties, with no deaths. Typhoid fever was reported present in 46 counties, 258 cases and 37 deaths. Pneumonia caused 469 deaths or 115 less than occurred in the corresponding month of 1905. Deaths by violence numbered 112, of which 7 were homicides and 20 suicides. The mortality for the month was at the annual rate of 17.3 per 1,000.

IOWA.

Chiropractic Pays Fine.—D. D. Palmer, Davenport, who was sentenced to pay a fine of $350 for practicing medicine without a certificate, after 24 days in the county jail, was released April 21 on payment of the fine.

Case Against Physician Dismissed.—In the case of the State of Iowa vs. "Dr." J. G. Shipley, Madrid, charged with practicing medicine without a license, as no witnesses against the physician appeared, the case was dismissed and the defendant discharged.

KENTUCKY.

Personal.—Dr. Sylvester J. Wedding, Hartford, is seriously ill with heart disease at his home.——Dr. W. Albert Berry, Ashland, who was operated on for appendicitis at the Charles S. Gray Deaconess Hospital, Ironton, Ohio, four weeks ago, has recovered sufficiently to return home.

Damage Suit Dismissed.—On April 14 Judge Field, Louisville, dismissed on demurrer the $25,000 damage suit of Dr. Jesse L. Melton against the Kentucky State Board of Health, which was brought to hold the members of that body individually liable because of the refusal of the board to approve the application of the plaintiff for license to practice medicine in the state.

MARYLAND.

Cecil County Society Officers.—Dr. S. Groome Fisher, Port Deposit, has been elected president, and Dr. Howard Bratton, Elkton, secretary and treasurer, of the Cecil County Medical Society.

Personal.—Dr. Joseph R. Owens has been nominated for mayor of Hyattsville.——The President has renominated Dr. Robert A. Ravenscroft of Garret County as surveyor of customs of Baltimore.

Smallpox.—An outbreak of smallpox among the colored people in Crisfield, an oyster town in the southern part of the eastern shore, is reported. Fifteen cases were discovered there by Dr. Marshall L. Price, Baltimore, of the State Board of Health.

Cocain Seller Convicted.—A young negro was convicted of selling cocain among the negroes at Hagerstown, April 18, and was sentenced to one year in jail and a fine of $500 and costs. This evil has grown to alarming proportions there and a crusade has been inaugurated by the police against it. The maximum penalty was inflicted in this case.

Annual Meeting of Society.—The annual meeting of the Montgomery County Medical Society was held at Rockville, April 17. Dr. Edward Anderson, Rockville, was elected president; Dr. James E. Deets, Clarksburg, vice-president, and Dr. John L. Lewis, Bethesda, secretary-treasurer. Dr. Roger Brooke, Sandy Spring, was chosen as delegate to the state society, with Dr. James E. Deets, Clarksburg, alternate. Drs. W. French Greene, Brookeville, and Otis M. Linthicum, Rockville, were chosen censors. It was decided to hold the fall meeting at Germantown.

Baltimore.

Personal.—Dr. A. R. L. Dohme sailed for Europe, May 5.——Drs. Henry Lee Smith, Wirt A. Duvall, Andrew H. Whitridge and Jacob D. Norris have been reappointed police surgeons.

Bequest.—Mrs. Margaret A. Snyder died April 16, leaving by her will $2,000 to the Union Protestant Infirmary, the income of which is to be used for the support of free beds for the sick poor.

Will Study Mosquitoes.—Dr. George H. Dieffenbacher arrived in Baltimore May 4 from Bremen. He has been delegated by the grand duke of Baden to study malarial germs and mosquitoes in North and Central America.

College News.—Maryland Medical College graduated a class of 29 at its eighth annual commencement, May 3.——The Baltimore University School of Medicine intends to build a hospital on the site recently purchased in the northern section of the city.

Portrait Presented.—A handsome oil portrait of the late Dr. Richard McSherry, professor of principles and practice of medicine for many years in the University of Maryland, has been presented to the Medical and Chirurgical Faculty of Maryland by his sons.

Church Home Report.—The Church Home and Infirmary reports for the year an income of $67,236 and expenses of $55,556. Bequests, etc., received amounted to $12,259. During the year 353 operations were performed, with 8 deaths. An annex has been built at an expense of $50,000, which provides a home for nurses and rooms for special diseases.

Additional Smallpox Appropriation.—The board of estimates has voted an additional $1,000 to the health department to be used in the fight against smallpox. Since the original appropriation of $5,000 was made there have been 83 cases of smallpox, each of which has cost the city $62.55. There were 9 cases of smallpox reported during April.

MICHIGAN.

Found Guilty.—Dr. William C. Kitchen, Detroit, convicted of an attempt to perform a criminal operation, was sentenced on April 17 to pay a fine of $250 or to be imprisoned for six months in the house of correction.

Secures Tuberculosis Sanitarium.—The board of trustees of the Michigan State Sanitarium for the Treatment of Incipient Tuberculosis has selected a site for the institution at Howell, containing about 190 acres at an altitude of 1,100 feet above sea level.

Hospital for Ann Arbor.—The announcement is made that a large Roman Catholic Hospital will be built on a site purchased on the brow of a hill overlooking the Huron River. It is to be known as St. Thomas Sanitarium and is expected to cost about $100,000.

Graduating Exercises.—A class of 12 was graduated from the Grand Rapids Medical College, May 3. Dr. William Fuller delivered the president's address. Dr. Francis J. Lee presented the diplomas and Martin H. Carmody delivered the address of the evening.

German Clinic Opened.—A new free clinic, to be known as the German Polyclinic, was opened at Grace Hospital, Detroit, April 2. The staff of the polyclinic is composed exclusively of German physicians. Dr. Hermann Kiefer is president, and Dr. Ernest W. Haas, secretary, of the staff.

Personal.—Dr. Joseph Foster, in attempting to alight from a buggy in front of his office in Lansing, fell and sustained a fracture of the right humerus.——Dr. A. Douglass Lake, Kalamazoo, who has been under hospital treatment for several months, has recovered, and will soon resume practice.

Crusade Against Itinerants.—Physicians of Marshall and surrounding cities assembled in the office of Dr. G. B. Gesner, Marshall, April 20, and by resolution decided to continue the crusade inaugurated some time ago against itinerant and other physicians practicing medicine in Calhoun County without having been properly registered as required by law.

March Mortality.—During March 3,236 deaths were reported, corresponding to an annual rate of 14.8 per 1,000, which compares favorably with the rate of 15.5 per 1,000 for March, 1905. Pneumonia caused 368 deaths; tuberculosis, 233; accident and violence, 140; cancer, 138; whooping cough and influenza, each 60; diarrheal diseases of infants, 47; meningitis, 44; diphtheria, 38; measles, 28; scarlet fever, 27, and typhoid fever, 26.

MISSOURI.

Southwestern Physicians Meet.—The Southwestern Missouri Medical Association met at Springfield, April 19 and 20. The following officers were elected: Dr. Thomas R. Loer, Billings, president; Drs. Finis L. Anderson, Joplin, and O. N. Carter, Brookline, vice-presidents; Dr. Herbert S. Hill, Springfield, secretary, and Dr. William B. Patterson, Springfield, treasurer.

Snodgrass Memorial.—Memorial resolutions on the death of Dr. Charles A. Snodgrass were adopted by the St. Louis board of health, April 19, which extended sympathy to his family and authorized that a memorial stone in his honor be placed on the wall of the new pathologic building at the State Hospital. The resolution also names the building the Snodgrass Laboratory of Pathology and Bacteriology.

NEW JERSEY.

Personal.—Dr. E. L. B. Godfrey, Camden, was given a complimentary dinner by physicians of Camden and Philadelphia at Washington Park, May 3.

Mosquito Bill Signed.—The mosquito bill of Prof. John B.

Smith, state entomologist, was signed by Governor Stokes, April 22. The bill provides for an appropriation of $350,000 for the drainage of mosquito marshes throughout the state, and for the removal of other breeding places of the mosquito. The work is expected to take a period of five years, and the legislature has decided that no more than $70,000 shall be expended in any one year. Municipalities are expected to contribute a share of the expense, and state money is to be allowed in proportion to the amount of local assistance given.

Medical Society Meets.—At the regular meeting of the Camden County District Medical Society, April 25, a resolution was adopted urging the United States senators and representatives from New Jersey to bring about the passage, without amendment, of the Pure Food and Drug bill as passed in the senate. They also endorsed the action of the Medical Council to secure passage of a bill providing for a department of public health with representation in the cabinet. The following officers were elected: President, Joel W. Fithian; vice-president, Dr. Sylvan G. Bushey; secretary, Dr. Paul M. Mecray; treasurer, Dr. A. Haines Lippincott; historian, Alfred Cramer; committee of arrangements, Drs. Daniel Strock, H. F. Palm and Edward A. Y. Schellenger, and delegates to the Medical Society of New Jersey, Drs. Paul M. Mecray, Dowling Benjamin, all of Camden, and William A. Westcott, Berlin.

NEW YORK.

Personal.—Dr. Charles W. Pilgrim, superintendent of the Hudson River State Hospital, Poughkeepsie, has been appointed president of the state commission on lunacy, to succeed Dr. William Mason, resigned.

From Buffalo to Europe.—Dr. A. W. Hurd, superintendent of the Buffalo State Hospital, sails for Europe.——Dr. Leonard Wacker will sail for Europe.——Dr. E. Rampacher sails for Europe.——Dr. F. Park Lewis sails for Europe.

Bills Passed.—The Wedemyer bill, which was designed to prevent New York City from building a consumptive hospital in Staten Island, passed the assembly but got no further.—— The Tully bill, prohibiting a druggist from selling narcotic or patent drugs except on prescription of a physician, passed the senate.

Commencement.—The seventy-fifth annual commencement exercises of Albany Medical College were held May 1, when degrees were conferred on a class of 32 by Rev. Andrew Van Vranken Raymond, D.D., chancellor of the university. The address to the graduating class was delivered by the Hon. Andrew S. Draper, and Dr. Lemon D. Washburn delivered the valedictory address.

Alumni Meeting.—The annual meeting of the Alumni Association of Albany Medical College was held May 1, at which the following officers were elected: President, Dr. Thomas Wilson, Hudson; vice-presidents, Drs. Frederick L. Classen, Albany; James A. Clyne, Joliet, Ill.; Charles P. McCabe, Greenville, N. Y.; Robert W. Andrews, Poughkeepsie, N. Y., and James W. King, Stottville, N. Y.; recording secretary, Dr. J. Montgomery Mosher, Albany, (re-elected); corresponding secretary, Dr. Andrew McFarlane, Albany; treasurer, Dr. Robert Babcock, Albany, and historian, Eugene E. Hinman, Albany (re-elected).

Physicians for Board of Regents.—The following appointments have been made to the State Board of Medical Examiners: Dr. William Warren Potter, Buffalo; Dr. William S. Ely, Rochester, and Dr. Maurice J. Lewi, New York City, have been reappointed, and Dr. Arthur W. Booth, Elmira, has been appointed to fill the unexpired term of the late Dr. George Ryerson Fowler, Brooklyn.——From the Homeopathic Medical Society, Drs. John M. Lee, Rochester; J. Willis Candee, Syracuse, and George E. Gorham, Albany, were reappointed, and from the State Eclectic Society, Drs. H. L. Smith, Buffalo; Orlando W. Sutton, Bath, and M. H. Nichols, Worcester.

Defeat of Stevens-Wainwright Bill.—The defeat of the Stevens-Wainwright "patent-medicine" bill in the assembly, May 3, was accomplished by the adoption of four amendments offered by four members, none of whom was opposed to legislation curbing the "patent-medicine" trust and each of whom believed that in some respects the measure was too radical. The New York *Times* says:

> Tompkins of New York stated that he favored such legislation and contemplated introducing similar legislation. He then asked that three certain poisons be exempted from the provisions of the measure, on the ground that they were not "habit forming." The amendment was adopted by an overwhelming rising vote. Three other amendments were adopted in rapid succession, and the fate of the measure was sealed then and there.
>
> Hooker of Genesee spoke of certain "patent medicines" that contained "one good drunk." He doubted if it would be advisable to compel the printing of the formula on "patent medicine" packages, as in many instances it would certainly instruct people how an intoxicant could be obtained in a genteel way.
>
> Some members held that "patent medicine" business was largely fraudulent, but their convictions did not cause them to vote against the amendments. The retail drug merchants had been deluging the members with protests against the bill. These protests had much weight. Another factor against the measure was the influence of the country newspapers, which derive considerable revenue from "patent medicine" advertisements.

New York City.

Bequest.—According to the will of Edgar V. Lawrence, the Brooklyn Home for Consumptives is to receive $1,000, and the Home for Crippled Children in Manhattan, $1,000.

Quarantine Season Begins.—The quarantine season for vessels arriving from coastwise ports has begun and will continue until November 1. All vessels from ports south of Cape Henlopen will be inspected at quarantine.

More Impure Milk Sold.—Six dealers were arraigned before the Westchester police court for selling impure milk. Five were held in $100 bail each for trial at special sessions. In the Court of Special Sessions six dealers were fined, the fines ranging from $50 to $15.

Rockefeller Institute for Medical Research.—This institution, which has been occupying temporary quarters during the past two years, has moved into its new laboratories at Avenue A and Sixty-sixth Street. It is announced that the formal opening, which has been delayed for several months, will take place on May 11.

Cerebrospinal Meningitis at Quarantine.—The Italian liner *Il Peimonte* has been released after being held up for two days on account of the illness of five passengers. The ship's surgeon reported five deaths at sea. The sick passengers showed symptoms of cerebrospinal meningitis and the autopsy on one woman who died at quarantine confirmed this diagnosis.

Low Mortality.—The number of deaths in Greater New York for the week ended April 28 was 1,523, as compared with 1,636 for the corresponding week of last year. The mortality from measles and bronchopneumonia has been three times as great as last year. There has been a decrease in the number of deaths from tuberculosis, heart disease and cerebrospinal meningitis.

Monument to Dr. Skene.—This monument was unveiled on Saturday, May 5, by Mr. Hirsch in behalf of the Skene Monument Association and presented to the city. Dr. Abraham Jacobi delivered the address. It was erected by private subscription and was the work of J. Massey Rhind. It occupies one of the mounds near the plaza at the main entrance to Prospect park, Brooklyn.

Experimentation with Embalming Fluids.—Coroner's Physician Dr. Edward T. Weston is being examined before District Attorney Jerome on the charge of having experimented without any authority on the corpses in his charge with embalming fluids, and that this was done before the cause of death had been ascertained. In these experiments, which were made at the morgue, 20 bodies were used, and Dr. Weston claimed that the cases had all been reported to the coroner's office.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended April 28, 1,454 cases of measles, with 39 deaths; 475 cases of tuberculosis, with 175 deaths; 475 cases of cerebrospinal meningitis, with 175 deaths; 337 cases of diphtheria, with 40 deaths; 237 cases of scarlet fever, with 13 deaths; 26 cases of whooping cough, with 5 deaths; 22 cases of typhoid fever, with 8 deaths; 2 cases of smallpox, with 1 death, and 97 cases of varicella, a totality of 3,125 cases, with 456 deaths.

PENNSYLVANIA.

Philadelphia.

Entertainments.—Dr. Emery Marvel of Atlantic City, N. J., entertained the members of the executive committee of the Philadelphia Medical Club at dinner May 5, at the Hotel Chelsea, in Atlantic City.

Hospital Opened.—The new addition to the Samaritan Hospital was dedicated with appropriate ceremonies, April 30. The building was thrown open for inspection from 3 to 10 p. m., and supper was served by the Woman's Samaritan Club from 6 to 8.

Hospital Examination.—The examination of applicants for resident interneships in the Philadelphia General Hospital will be held by the civil-service commission in City Hall, May 12. There are 24 vacancies, but Dr. Coplin, director of the department of public health and charities, it is said, will increase the number to 32.

Trendelenburg Here.—Dr. Trendelenburg, the eminent surgeon of Leipzig, who comes to America to be the guest of the American Medical Association at Boston, arrived ir Philadelphia, May 4, and was entertained by Dr. William W. Keen. He visited Jefferson Medical College and its hospital, and the University of Pennsylvania, May 5. He went from Philadelphia to Chicago and Baltimore, and will attend the meeting of the American Surgical Association at Washington, and will go to Cleveland, May 30.

Hospital Reports.—The report of the Presbyterian Hospital for the month of April shows that 233 patients were admitted to the wards and that 1,724 were treated in the different dispensaries. The ambulance made 170 calls.——The report of the Charity Hospital for the month of April shows that 313 medical, 239 surgical, 20 ophthalmologic, 23 otologic and 105 laryngologic patients were treated in the clinics.——The report of the Polyclinic Hospital shows that 7,915 patients visited the different dispensaries, 608 patients were treated in the accident wards, and 116 were admitted to the main building.

Street Cars Reported Clean.—Inspectors attached to the bureau of health continued their examinations of street cars, and reported May 2 that the inspection of 249 cars revealed that only four were unclean. These four exceptions showed evidences of expectoration only. Complaints have been received by Dr. Abbott of the health bureau, by the public of the odor arising from the disinfection of cars with carbolic acid. It is possible, therefore, that disinfection may be abandoned and that the official director will endeavor to secure sanitary cars by keeping the cars scrupulously clean of dirt and dust.

Bequests.—By the will of the late Rebecca White the Women's Medical College of Philadelphia receives $5,000, the income of which is to be applied to a beneficiary fund for the gratuitous education and training of worthy, well selected students who are in need; especially for those who feel called for the Christian missionary service; to the West Philadelphia Hospital for Women, $1,000; to the Women's Hospital of Philadelphia, a valuable property in trust, the income of which is to be used for furnishing and supplying its diet kitchen, and to the Women's Hospital of Philadelphia, $5,000 in cash.——By the will of the late Caroline Steppacher a bequest of $100 is made to the Jewish Hospital.——By the will of the late Leonard Zeller the German Lutheran Home receives $500.

Health Report.—The total number of deaths reported from all causes during the week reached 502. This is a decrease of 85 over the number reported last week and an increase of 21 over the number reported in the corresponding week of last year. The principal causes of death were: Typhoid fever, 14; measles, 6; pertussis, 7; consumption, 70; cancer, 22; apoplexy, 18; heart disease, 45; acute respiratory disease, 82; enteritis, 17; hepatic cirrhosis, 6; appendicitis, 6; Bright's disease, 37; suicide, 7, and accidents, 28. There were 264 cases of contagious disease reported, with 26 deaths, as compared with 332 cases and 48 deaths reported in the preceding week. Typhoid fever is present throughout the city, only three wards being exempt from the disease. Statistics show an increase of 37 over the number reported last week. Measles is on the decrease, the cases reported numbering 390, as compared with 411 reported in the preceding seven days. One case of smallpox was reported.

CANADA.

French Medical Society in Manitoba.—A medical association has been organized in Manitoba with a charter membership of 15, to be known as L'Association Médicale Française du Manitoba. The president is Dr. J. U. O. Lambert of St. Boniface.

Personal.—Dr. Charles O'Reilly, for nearly thirty years superintendent of the Toronto General Hospital, has returned to Toronto from a year's sojourn abroad, and has commenced practice there, confining himself to consultation work. His son, Dr. Breffney O'Reilly, who has been in Japan, will join him in the autumn.——Dr. Walter B. Geikie, one of the prominent medical educationalists of Ontario for the past forty years and for many years dean of Trinity Medical College, was presented with a gold-headed ebony cane by the class of '06, which was the last to register with old Trinity before its amalgamation with Toronto University.——Dr. Charles A. Peters has been appointed attending physician to the Montreal Contagious Diseases Hospital; Dr. John McCrae, attending physician in diphtheria, and Dr. A. H. Gordon for scarlet fever. ——Dr. Colin A. Campbell, late senior house surgeon at Moorfields, where he had been for three years, has commenced practice in Toronto. Dr. Campbell is one of five Canadian physicians who held this position.

THE CALIFORNIA SITUATION.

List of Physicians and Addresses—Medical Aspects of the San Francisco Calamity.

Dr. George Blumer, under date of May 2, writes:

"Probably no one, unless he has been on the spot under similar circumstances, can appreciate the magnitude and the effects of a disaster like that which befell San Francisco on April 18. The earthquake, in itself sufficient to cause an immense amount of damage and loss of life and property, was followed in a few hours by the fire which, on account of the lack of water, could only be imperfectly combated. The earthquake came, as a matter of fact, at an unusually favorable time of day, for, though it was already light, the number of people on the streets was very small, and many doubtless owe their lives to this fact. The loss of life from the fire also was very slight, considering its magnitude, for those in the residence portions of the city had, as a rule, plenty of warning.

"On the day of the disaster the efforts of the medical men were confined mainly to attending to those hurt by falling buildings or burned. The great majority of the injured were suffering from contusions, abrasions, or fractures of the skull or limbs. The regular emergency hospitals at the City Hall and at the Golden Gate Park were so severely damaged that they were useless, but the Harbor Emergency Hospital on the water front was practically unharmed. The Mechanics' Pavilion, a large wooden structure, was converted into a temporary emergency hospital, and here the regular emergency surgeons, aided by numerous volunteers, had under treatment some 250 patients, who were placed on mattresses on the floor of the main pavilion. Unfortunately, this building had to be abandoned on account of fire early in the afternoon of the 18th, but the patients were rapidly removed without a single mishap, and were transferred to the Army General Hospital at the Presidio, the German Hospital and the California Women's Hospital. At the same time the uninjured Harbor Emergency had been doing good work, and was transferring serious cases to the Naval Hospital on Goat Island.

"As a result of the fire thousands of people were rendered homeless, and these were compelled to escape across the bay on ferries, or to camp out in the various parks and open squares of the city. The main medical problem then resolved itself into one of sanitation. The sick and injured being cared for in those hospitals which escaped the flames, it became necessary to protect the well from the dangers of their own excreta, and from the ravages of epidemic diseases. This work has been, even now, so well organized that all danger from these sources is practically nil. In each public square there is organized a sanitary committee, partly laymen and partly physicians; under the committee are relief men who keep the squares clean, inspect the latrines, and keep the inhabitants informed as to the sanitary regulations. The scarcity of water is now being remedied, food is abundant and wholesome, blankets and mattresses have been forthcoming, and the prospects from a medical standpoint are encouraging.

"It seems certain that for some time the conditions will remain the same as those described so far as living conditions are concerned. In an eastern climate the campers might suffer much from exposure; here, with the rains practically over till next October, this is not to be anticipated. It is safe to say that many of the poorer class will be in better physical condition than they have been for years. The plain food, the outdoor living, and the withdrawal of alcoholic stimulants will all aid in producing physical betterment. From a medical standpoint San Francisco is now in excellent condition, and likely to stay so. The profession in this, as in previous catastrophes, has shouldered its share of the burden without shirking and without grumbling."

From the President of the County Society.

Dr. Wallace I. Terry, president of the San Francisco County Medical Society, writes:

"I hasten to express sincere thanks for your kindness in our misfortune, which I am sure will be voiced by every member of the medical profession in the city. . . . I have announced that I should call a meeting of the San Francisco County Medical Society next Thursday evening, May 3, 1906, at which time we will take up the question of ways and means to assist physicians of this city.

"Outside of San Francisco but few physicians suffered any loss, but I estimate that 1,000 of our physicians were burned out, at least so far as their offices were concerned. . . .

"The president of the New York Academy of Medicine has tendered us aid as well as medical bodies of Portland, Ore., Salt Lake City and Los Angeles, and there may be other offers

with which I am as yet unacquainted, owing to the confusion and scattering of the medical men. . . .

"We lost our county society library of about 6,000 volumes and many individual medical libraries which will be hard to replace and later I shall request you to aid us in securing duplicates from many other libraries in the United States. We have a small fund of money which has been placed at our disposal and is sufficient to meet our immediate necessities. In the meantime I wish you would announce how grateful we are for the aid tendered us and the sympathy which has poured in from all quarters."

The Situation in Santa Rosa.

"SANTA ROSA, CAL., May 2, 1906.

"*To the Editor:*—We notice with great pleasure that a fund is being raised to aid the doctors of the Pacific Coast who have suffered so severely in the recent great disaster. The earthquake did comparatively little damage in San Francisco, but the fire which followed spread ruin over a great area, and made desolate many a home.

"In Santa Rosa, Sonoma County, Cal., a most beautiful town of about 12,000 inhabitants, the earthquake did great damage; all the business blocks were thrown down, also many dwellings, and scarcely a chimney remained standing in town. Fire followed and burned about half of the business section before it was conquered. Many of our doctors lost everything in this conflagration, and are now in need of assistance.

"Santa Rosa suffered heavily both in loss of life and loss of property, more so in proportion than San Francisco. The calamity in San Francisco is so great that it has taken notice from us. We have a flourishing county medical society of 45 members, but we have lost all of our books, etc.

"We respectfully ask that any donation intended for our unfortunate members be sent to us, in Santa Rosa, where it will be most thankfully received and properly distributed by the county society.

"We wish you godspeed in your work of aiding the deserving.

Fraternally,

"A. MCG. STUART, M.D., President.

"G. W. MALLORY, M.D., Secretary."

White Cross Contingent.

The following report, dated April 29, has been received of the physicians and nurses sent to San Francisco, April 23, under the auspices of the American White Cross First Aid Society, in charge of Major P. J. H. Farrell:

The first section arrived six hours late and was taken to the Hearst camp in Oakland. Surgeon Joseph B. Greene, in command, reported to Captain Kennedy, representative of Colonel Torney, who stated that he had been instructed to quarter the detachment in the Presidio adjoining the General Hospital. The following are the assignments:

To the Smallpox Hospital, Oakland, 6 nurses.
To the W. R. Hearst Maternity Hospital, Oakland, 8 nurses.
To the California City Hospital, one surgeon and one nurse.
To Logan Square, Harbor View Camp, seven surgeons.
As health examiners, on the ferries plying between Oakland and San Francisco, 14 surgeons, under charge of Surgeon Greene.
To the W. R. Hearst Camp, Adams Point, Oakland, 17 nurses.
To the Model Government Hospital Camp, 15 nurses.

Several nurses have also been assigned to duty at the United States General Hospital at the Presidio.

The health of all is reported excellent, and all are working earnestly and well.

Dr. Joseph B. Greene writes that it is difficult to trace refugees, as transportation is so difficult and the refugees are so scattered. The physicians and nurses sent out by the society are scattered over the entire city, doing various and sundry duties. Dr. Greene is in charge of inspection on ferry boats searching for smallpox.

The laundry at the United States Army General Hospital, Presidio, of San Francisco, just in the rear of the main hospital building, caught fire April 29, but owing to a favorable wind and prompt work, the fire was confined to this building and did not spread to the hospital.

Present Addresses of San Francisco Physicians.

The following list of present addresses of San Francisco physicians is taken from San Francisco papers and other sources:

Adams, Frank L., 1230 Telegraph Ave., Oakland.
Bailey, Thomas E., 1917 Fillmore St.
Belmont, Francis, Oakville, Napa Co.
Blake, Selden L., Irving Sanatorium, 906 Eddy St.
Bucknell, George J., 1121 Laguna St.
Burke, Isaac, Twelfth and Clay St., Oakland.
Burke, William P., Twelfth and Clay Sts., Oakland.
Cross, Charles V., 2007 Devisadero St.
Day-Bew, Lolita B., 2264 California St.
Dessan, H. F., Twelfth and Clay Sts., Oakland.
Dozier, Charles A., 827 Du Boce Ave.
Farnum, Charles E., 513 Devisadero St.
Forster, William M., Irving Sanatorium, 906 Eddy St.
Franklin, W. Scott, 2470 Bush St.
French, Charles E., 2715 Hillegas St., Berkeley.
Fredrick, M. W., 2015 Fillmore St.
Friedlander, David, 2897 Jackson St.
Griswold, William H., 894 Eddy St.
Goss, Alice M., 1800 Buchanan St.
Johansen, Erneste A., 1309 Oak St.
Jones, Philip Mills, 1230 Telegraph Ave.
Juilly, Georges H., Franco-American Hosp., 21st and Howard Sts.
Kenyon, C. G., 2355 Pacific Ave.
Lamb, Frank T., 1964 Bush St.
Lamb, Lottie A., 1964 Bush St.
Maclean, Daniel, Irving Sanatorium, 906 Eddy St.
McMurdo, John R., 2026 Steiner St.
Mercer, Ernest H., 3810 Mission St.
Minaker, Andrew J., 224 San Jose Ave.
Mish, Solomon C., 1075 Gough St..
Morrison, Joseph G., Haight and Masonic Ave.
Nelson, Arthur B., Irving Sanatorium, 906 Eddy St.
Orella, F. R., 872 Chestnut St.
Philip, John H., Irving Sanatorium, 906 Eddy St.
Preston, Walton, 1823 Franklin St.
Read, William P., 2105 Pine St.
Riley, William C. 1796 Post St.
Rosenthal, Adolph G., German Hospital.
Scott, Catherine V. C., 1386 Haight St.
Stafford, David E., Sacred Heart Church.
Terry, W. I., Presidio Sanitary Division.
Thelle, Emil, 472 Eighth St., Oakland.
Thomas, Frank, 810 Turk St.
Thompson, John E., 200 Fourth Ave., Richmond District.
Thrasher, Marion, 881 Fulton St.
Tuchler, Alexander S., 703 Van Ness Ave.
Wakefield, W. Francis B., 2161 Sutter St.
Whitman, Charles H., 1007 Fillmore St.

Additional List of the Safe.

Dr. Douglas W. Montgomery sends us, under date of April 27, the following additional list of physicians who are safe and well: John M. Macdonald, Frederick J. Hund, Vincent P. Buel ley, George P. Purlenky, Alfred Newman, George H. Borkowitz, D. E. Barger, Edward G. Frisbie, Gerald J. Fitzgibbon, Frank T. Fitzgibbon, Alexander T. Leonard, Michael J. Fottrell.

St. Louis Sends Relief.

St. Louis physicians, through the St. Louis Medical Society, have contributed $650 for the California physicians' relief. The names of the individual contributors are as follows:

Alt, A.	Gettys, S. L.	Moeller, C. E.
Amerland, J. H.	Goodwin, E. J.	Neuhoff, F.
Ambruster, A. C.	Graul, R. E.	Nietert, H. L.
Ament C. M.	Green, John, Jr.	Ogle, O. E.
Anderson, C. E.	Greer, E. O.	Orth, Carl.
Avars, T. R.	Grindon, J.	Porter, Wm.
Bader, G. W.	Gross, J. H.	Price, J. M.
Ball, James M.	Hardy, J. A.	Reder, F.
Ball, O. F.	Haverstick, G. W.	Ring, Frank.
Bartscher, H. W.	Hausneck, F. A.	Rothman, P. M.
Baumgarten, G.	Hempel, Max.	Rothstein, H.
Bedal, A. C.	Henderson, F. L.	Sauls, J. A.
Blair, V. P.	Hill, Roland.	Schmidt, Aug.
Becker, E. F.	Hirschl, W. T.	Schlossstein, A. G.
Brookes, H. S.	Hoffmann, Phil.	Scott, C. W.
Bryan, W. M. C.	Hoge, M. W.	Senseny, E. T.
Buchwalter, J. C.	Homan, George.	Shattinger, C.
Bunford, C. E.	Hopkins, T. A.	Shelman, A. P.
Caplan, L.	Jennings, J. E.	Shields, W. B.
Cawood, J. H.	Johnson, H. McC.	Skrainka, P.
Clausen, H. W.	Julian, H. M.	Sluder, G.
Coughlin, W. T.	Kennedy, A. F.	Smith, Elsworth.
Crandall, G. C.	Kern, J. H.	Spinzig, F.
Curtis, A. N.	Kolbenheyer, F.	Steger, W. T.
Dalton, H. C.	Kollme, Otto.	Steedman, I. G. W.
Dorsett, W. B.	Konzelmann, P. R.	Steele, A. J.
Dudley, C. R.	Lightner, C. R.	Streutker, C. E. F.
Faber, J. E.	Lutz, F. J.	Stockwell, B. E.
Ehrenfest, H.	Magoon, E.	Sturhahn, F. O.
Fisch, C.	Mansfield, T. B.	Terry, R. J.
Fries, W. A.	Martens, E. J.	Thumser, L.
Everett, A. E.	Mathews, M. H.	Tupper, P. Y.
Fulton, A.	Mayes, J. F.	Upshaw, H. A.
Galloway, W. L.	Meng, E. R.	Ware, C. A.
Gamble, D. C.	Merwin, G. M. D.	Wichmann, H. L.
Garstang, D. B.	McLean, M. H.	Wolf, A. S.
Gehrung, E. C.	Mickel, R.	Zahorsky, John.
Gellhorn, G.	Millican, K. W.	

The contributions were in sums as follows: Five individuals contributed $25 each; one, $15; twenty, $10; one, $8; forty-nine, $5; two, $3; sixteen, $2; seventeen, $1; four, $0.50.

Appeal to Pennsylvania Physicians.

A copy of the following circular letter has been mailed by the secretary of the Philadelphia County Society, Dr. William S. Wray, to every regular physician in the state of Pennsylvania:

PHILADELPHIA, April, 1906.

Dear Sir:—I enclose herewith a copy of the resolutions passed by the Philadelphia County Medical Society, April 25, 1906. You will note in the matter therein contained that it is desired to create a fund for the relief of California physicians who are in financial distress by reason of the recent disaster. Will you kindly bring

this matter to the attention of your County Medical Society at the earliest possible moment. The treasurer of our committee will be glad to receive from your society or from the individual members thereof any contribution which they may feel inclined to make. The fund when collected will be placed in the hands of some responsible representative physician of California who will see that the money is expended judiciously and where it is most needed. The fund will be sent out as the contribution of the physicians of the State of Pennsylvania.

Any contribution, from one dollar up, will be gladly received.

WILLIAM S. WRAY,
Secretary of the Philadelphia County Medical Society.

Cincinnati to Aid.

The president of the Cincinnati Academy of Medicine has appointed Drs. C. L. Bonifield, E. O. Smith and Magnus Tate as a committee on subscription to help the profession of San Francisco.

THE CALIFORNIA FUND.

It is not necessary to repeat what has already been printed in these columns regarding the fund to aid physicians in California. The object of the Board of Trustees in authorizing THE JOURNAL to receive subscriptions for the purpose was to give all an opportunity to contribute who otherwise might not know through what channels they could send their contributions. As has been stated, in addition to the Board of Trustees of the American Medical Association, under whose direction this fund is being collected and will be distributed, a local committee, which could be quickly gotten together in an emergency, was appointed to act in an advisory capacity. As we go to press we have no definite information regarding who will constitute the committee appointed by the California profession. A meeting of the San Francisco County Medical Society was called for May 3 to appoint a local committee for the distribution of this and other funds. Next week we hope to give full details in regard to this committee.

The following contributions, not acknowledged last week, have been received up to 9 o'clock, Wednesday morning, May 9:

INDIVIDUAL CONTRIBUTIONS.

Allen, Frank H., Shelby, Iowa	$ 2.00
Anderson, Edw. T., Platte, S. D.	2.00
Arnold, B. A., Freeport, Ill.	20.00
Atwood, E. C., Daytona, Fla.	10.00
Campbell, W. J., La Plata, Macon Co., Mo.	1.00
Cunningham, H. K., La Plata, Macon Co., Mo.	0.50
Deaderick, Wm. H., Marianna, Ark.	1.00
Donnellan, P. S., Redlands, Cal.	5.00
Ellis, S. L., La Plata, Macon Co., Mo. 6	1.00
Friedenwald, Harry, Baltimore	5.00
Gage-Day, Mary, Kingston-on-Hudson, N. Y.	5.00
Gates, J., La Plata Macon Co., Mo.	1.00
Graham, W. A., Fayette, Ala.	1.00
Grant, W. W., Denver, Colo.	10.00
Hicks, I. F., Dunn, N. C.	2.50
Hirshfelder, Arthur D., Baltimore	25.00
Hodson, F. A., Sheridan, Wyo.	5.00
Holley, J. T., Galveston, Texas	2.00
Kenefick, M. J., Algona, Iowa	1.00
Kittrell, W. H., Mt. Pleasant, Tenn.	5.00
Laughlin, C. E., Evansville, Ind.	5.00
Lewis, C. F., Austin, Minn.	1.00
Loose, D. N., Maquoketa, Iowa	5.00
McDavitt, B. C., La Plata, Macon Co., Mo.	1.00
McOscar, E. J., Ft. Wayne, Ind.	5.00
Marvel, Philip, Atlantic City, N. J.	50.00
Milner, Gordon, Baltimore	20.00
Naylor and Sturgis, Stephensville, Texas	5.00
Newton, H. C., La Plata, Macon Co., Mo.	1.00
Physicians' Protective Association, Freeport, Ill.	20.00
Pickett, Thos. E., Maysville, Ky.	10.00
Preston, John, Abilene, Texas	5.00
Raemer, E. F., Mitchell, S. D.	5.00
Randall, H. E., Lapeer, Mich.	5.00
Rabe, Wm. Louis, Dwight, Ill.	10.00
Ranson, B. B., Harper's Ferry, W. Va.	5.00
Saunders, S. W., La Plata, Macon Co., Mo.	1.00
Shattuck, Frederick C., Boston, Mass.	100.00
Shuttee, H. C., West Plains, Mo.	10.00
Sibler, Chas. Cleveland, Ohio	5.00
Smith, Frank R., Baltimore	10.00
Smyth, H. E., Bridgeport, Conn.	5.00
Stevens, George B., Boston	5.00
Trout, A. L., Sunrise, Wyo.	10.00
Tunstead, Hugh, Minneapolis	5.00
Walker, Robert A., Menominee, Mich.	5.00
Welch, Wm. H., Baltimore	25.00
Wheeler, John R., Burlington, Vt.	10.00
Wilson, John H., Bethlehem, Pa.	10.00
Wilson, W. F., Lake City, Minn.	1.00
Wilson, Olive, Paragould, Ark.	10.00

SOCIETY CONTRIBUTIONS.

Daviess County (Ind.) Medical Society	$ 5.00
Dover Medical Society, Dover, N. H.	50.00
Kingman County Med. Society, Kingman, Kas.	5.00
La Crosse County (Wis.) Med. Society	20.00
Medical Society of the County of Ulster, Kingston, N. Y.	50.00
Miami and Shelby County Societies (Ohio)	21.05
Montgomery County Medical Society, Dayton, Ohio	$100.00
Owen County (Ind.) Med Soc.	3.00
Perry County Medical Society, New Lexington, Ohio	10.00
Waukesha County Med. Society, Waukesha, Wis.	10.00

Medical Society Ramsey County, St. Paul, Minn., $460:

Abbott and O'Brien	$10.00	MacLaren and Ritchie	$25.00
Bacon, L. C.	5.00	McDavitt, Thos.	10.00
Bettingen, J. W.	10.00	Nelson, J. C.	5.00
Boeckmann, E.	25.00	Nelson, L. A.	5.00
Burch, Frank	5.00	Nippert, H. T.	5.00
Cannon, Balsome and O'Brien	10.00	Renz, Gustav A.	10.00
Cook, Paul B.	5.00	Riggs, C. E.	10.00
Coon, Geo. M.	5.00	Ritchie, Parks	10.00
Davis, Herbert	15.00	Rogers, J. T.	10.00
Dennis, W. A.	10.00	Savage, Arthur	5.00
Foster, Burnside	15.00	Schadle, J. E.	10.00
Fullerton, W. S.	5.00	Schwyzer, Arnold	25.00
Greene, C. L.	25.00	Shimonek, A.	25.00
Heath, A. C.	5.00	Sneve, Haldor	15.00
Lando, D. H.	5.00	Stumm, T. W.	5.00
Lankester, Howard	5.00	Sweeney, Arthur	15.00
Leavitt, Fred	10.00	Taylor, H. L.	25.00
Lewis, W. W.	5.00	Walsh, E. F.	25.00
Lundholm, E. M.	10.00	Wheaton, C. A.	25.00
		Williams, Cornelius	10.00

Hardeman County Medical Society (Tenn.), $15.00:

Cock, W. S.	$1.00	Tate, H. W.,	$ 5.00
Goddard, W. L.	1.00	Tate, Robert W.	1.00
Neilstead, H. M.	1.00	Werly, J. J.	1.00
Sassar, J. D., Sr.	5.00		

Simpson County Medical Society (Ky.), $10.00.

Drake, W. P.	$1.00	London, Finis	$1.00
Gossett, W. L.	1.00	London, W.	1.00
Gutherie, W. A.	1.00	McClure, S. W.	1.00
Hayes, J. W.	1.00	Morgan, E. C.	1.00
Jones, G.	1.00	Moss, M. M.	1.00

Chicago Medical Society (additional) $277:

Anker, I. C.	$ 5.00	Masilko, V. F.	$2.00
Beck, Carl	25.00	McBurney, B. A.	5.00
Best, B. T.	1.00	Mefford, W. T.	5.00
Brown, J. P.	5.00	Meyer, E. F.	3.00
Campbell, John G.	3.00	Miller, R. E.	1.00
Carr, James G.	2.00	Montgomery, Liston H.	5.00
Colegrove, E. H.	5.00	Mullan, Eugene A.	2.00
Davidson, E. A.	2.00	Peck, W. H.	5.00
Davis, Effa V.	5.00	Richmond, Y. G.	5.00
Davison, J.	10.00	Roberts, H. H.	2.00
Dodds, Robert	10.00	Robertson, John D.	10.00
Dodge, D. W. E.	2.00	Robinson, Byron	10.00
Doerderlein, Theo. J.	5.00	Rogers, Buell S.	10.00
Ellis, John B.	5.00	Shearer, W. A.	5.00
Guerin, John	25.00	Smith, E. M.	5.00
Hartung, Henry	5.00	Starkweather, R. E.	15.00
Heintz, E. L.	5.00	Stevenson, Alex. F.	10.00
Heisz, Emily J., Nora Springs, Iowa	2.00	Sugg, J.N., Clinton, Iowa.	10.00
Holmes, A. G. H.	2.00	Swean, V. U.	1.00
Hughes, G. L.,	1.00	Webster, J. P.	10.00
Kemp, Nereus C.	5.00	Weichelt, A.	5.00
Kiercka, P. B.	2.00	Weidner, M. R.	5.00
Lieberthal, David	10.00	Wherritt, David H.	4.00

Total	$1,491.05
Previously acknowledged	4,244.00
Grand total	$5,735.05

GENERAL.

Mare Island Navy Yard.—It is reported from Washington that the Senate Committee on Naval Affairs has ordered a favorable report on a bill authorizing the expenditure of $300,000 at the Mare Island Navy Yard, San Francisco. The object is to give work to the earthquake and fire sufferers.

Railway Surgeons Meet.—At the annual session of the Central of Georgia Railway Association, held in Birmingham, Ala., April 15, the following officers were elected: President, Dr. George R. West, Chattanooga, Tenn.; vice-president, Dr. Robert H. Taylor, Griffin, Ga., and secretary, Dr. J. R. Burdette, Tennille, Ga.

Cholera in the Philippines.—Chief Quarantine Officer Heiser reports that there has been a great decrease in the number of plague cases in the provinces; from an average of about 50 a day the number has dropped to about 5. The improvement is attributed to the very vigorous measures which the health department recently put in operation. In one town alone several thousand persons were vaccinated with anticholera vaccine.

Health Report of the Isthmus for March.—Colonel Gorgas in his monthly report states that the health conditions of the Isthmus continue excellent. No case of smallpox has occurred within the last year. The last case of plague occurred seven months ago, and the last case of yellow fever over three months ago. During March, among the 25,000 employés there were 78 deaths, 10 among whites and 68 among negroes. Of the 10 whites, 5 were from the United States. Of these 5, only 3 died from disease, 1 from pneumonia and 2 from dysen-

tery. The principal causes of death were malaria and dysentery. The disease causing the next highest death rate was dysentery, which caused 8 deaths, and after that accidental traumatism, which caused 4 deaths.

The Journal of **Abnormal Psychology.**—The first number of this journal has been received. According to the announcement it is intended for the publication of articles embodying clinical and laboratory researches in abnormal mental phenomena. The data supplied by such researches are of fundamental importance to neurology, psychiatry and psychology. The field of investigation includes, for instance, such subjects as hysteria, hallucinations, delusions, amnesias, abulias, aphasias, fixed ideas, obsessions, deliriums, perversions, emotions and their influence, exaltations, depressions, habit neuroses and psychoses, phenomena of hypnosis, sleep, dreams, automatisms, alterations of personality, multiple personality, dissociation of consciousness, subconscious phenomena, relation of the mind to physiologic processes, neurasthenic and psychasthenic states." The first number contains the following articles: "The Pathogenesis of Some Impulsions," Dr. Pierre Janet; "What Is Hypnosis?" Prof. W. v. Bechterew; "Recent Experiences in the Study and Treatment of Hysteria at the Massachusetts General Hospital, with Remarks on Freud's Method of Treatment by 'Psycho-Analysis'," Dr. James J. Putnam; "The Psychology of Sudden Religious Conversion," Dr. Morton Prince. The price is $3 a year and the editor is Dr. Morton Prince, 458 Beacon Street, Boston.

FOREIGN.

Australian **Hospital Damaged by Storm.**—The hospital at Longreach, Queensland, was recently damaged to the extent of $1,000 by a thunderstorm accompanied by heavy winds. The morgue was completely demolished.

Strike of Printers in Paris.—We have received a notice from Masson et Cie, publishers of the *Presse Médicale*, stating that the present strike among the printers will interfere with the further issuing of the journal until satisfactory arrangements can be concluded.

In Russia.—The *St. Petersburg. med. Wochft.* for April 7 gives the names of several physicians who have been released from custody on the payment of forfeit sums ranging from $50 to $2,000. They had been arrested for alleged participation in the revolutionary movement.

Plague in India.—A serious outbreak of plague is reported to have occurred at Jummoo, in Kashmir, northern India. A native ruler, the maharajah of Jummoo, has his palace there, and many deaths are reported among the palace attendants and the troops. Two hundred and eighty-five deaths are said to have occurred during the week ending April 21.

Multi-Centennials of the German Universities.—The University of Giessen completes in 1907 the three-hundredth year of its existence. The University of Leipsic is arranging a celebration for 1909 of its five-hundredth anniversary. We learn that the University of Leipsic was founded by secession of several thousand students, Dec. 14, 1409, from the flourishing university at Prague.

Suit for **Damages Against German Surgeon.**—A surgeon at Graz had occasion to take a skin flap of 2 sq. cm. from the thigh of a housemaid for transplantation. Some time afterward she instituted suit for damages, claiming $10,090 for the pain and lessening of her chances to get married, and $200 more for loss of time and expense of treatment. The surgeon was able to prove that the girl had given her formal consent beforehand, and the suit was dismissed.

Regional Bacteriologic Institutes in Belgium.—According to an article in the *Progrès Médical* for April 7, Belgium is the best provided with official laboratories for bacteriologic investigation of any country in the world to date. Each province has one or more, and the number of specimens sent for examination is constantly increasing every year. Since its foundation in 1896 to 1905 the laboratory at Liège has made about 35,000 analyses. Of this number 14,045 were made during the year 1904.

Beco Appointed **Governor of Brabant.**—Dr. E. Beco of Brussels, Belgium, has for some time been secretary-general of the department of agriculture and has had charge of the medical and sanitary matters connected with this department of the administration. He has recently been appointed governor of the province of Brabant. While congratulating him on his promotion, the *Gaz. Méd. Belge* mourns the loss of his able and devoted services for the welfare of the profession at large and the public health in general in his previous official capacity.

Vaccinated **Scotland.**—The report on vaccination in Scotland, in 1904, puts the argument in support of the operation in a somewhat striking manner. It states that the deaths from smallpox in 1903 numbered 41; of these persons 20 had been vaccinated, 12 had not, while the remaining 9 were doubtful. The report remarks: "Inferring from the average number of children vaccinated that about 94 per cent. of the population is vaccinated, these figures may be taken as indicating that the death rate among the unvaccinated is nearly fourteen times as great as it is among the vaccinated."

Medical Excursions for Medical Students.—A society has been formed in France to promote medical study trips of medical students. A large excursion of this kind was planned for April 18, a party of English medical students going to Paris for two or three days, and then on to Angers and Nantes, and home by way of Rouen and Havre. The medical students at each place visited welcomed the party and escorted them to the local medical institutions. The party returned after an instructive and enjoyable ten days' trip. The expense of the ocean trip debars American medical students from participating in the simple and inexpensive object lessons of such outings in other lands.

The Apathy of Londoners Toward Their Hospitals.—The duke of Fife, by some remarks regarding the apathetic attitude of Londoners toward their hospitals, has raised a storm of discussion in the lay press of the British metropolis. The duke of Fife, as acting president of the King of England Hospital Fund, said: "The great majority of Londoners do not subscribe to the hospitals at all, and the plain truth is that the London hospitals are maintained by a small number of charitable people." The consensus of opinion on the point raised by the duke of Fife is that Londoners are apathetic toward their hospitals, and that the total number of the London subscribers to the metropolitan hospitals does not exceed 20,000. It is stated that it is the well-to-do middle classes who are to blame.

Petition for Restriction of Experimental Research.—A committee in the German Senate recently reported on two petitions which asked for restrictions on laboratory research with animals. The spokesman remarked that one petition was "of the sentimental type, signed by society ladies, by a foreign diplomat accredited to the court of Berlin, by 'nature healers' and others, but not by a single person to whom the world owes any scientific progress. Many of the signatures were evidently given 'merely to oblige,' and the signers would be much surprised if their physicians were to refuse to make an injection of antidiphtheria serum in case of need in their families." The *Deutsche med. Wochft.* states that in his virgin speech, von Bergmann endorsed the condemnatory report of the committee with cutting sarcasm.

Exhibition of Appliances for Care of the Sick.—An exhibition of this kind was held at Berlin in 1899 and proved so popular that a credit of nearly $4,000 was left after its closure. A committee was recently formed to urge the appropriation of this sum for the foundation of a permanent educational exhibit of everything connected with the care of the sick. The committee has accomplished its purpose, and the exhibit was recently thrown open to the public in the new "Empress Frederick House," which was described in these columns on page 894. A model sick room and nursery are part of the exhibit. Owing to the comparatively small space, the committee aimed to exhibit only the most practicable and approved appliances, but even of these there is a bewildering array. Means to entertain, occupy and divert the patients are also shown, and garments for the very sick and for convalescents. The exhibition is described in detail in the *Zeitft. für aerztliche Fortbildung* for April 15.

Immunization with Bacteria Killed with Sugar.—Levy and Blumenthal of Strasburg announce that solutions of sugar have a marked bactericidal action, proportional to their concentration. They describe in the *Med. Klinik* for April 22 a number of experiments in which a single subcutaneous injection of typhoid bacteria treated with sugar rendered guinea-pigs immune to five to ten times the fatal intraperitoneal dose of virulent bacilli. They used galactose as the most convenient form of sugar, applying 1 to 4 mg. in a dry powder or dissolved in physiologic salt solution, to typhoid bacilli whose virulence had been tested and found to be one-tenth of the standard loop. The sugar and bacilli were then shaken up well at 37 C. and injected unfiltered. Rabbits injected with 2 mg. were also protected against fatal intraperitoneal infection. They conclude from their research that the prospects are encouraging for similar immunization of man with this simple, convenient and harmless technic. The sugar does not have a destructive action on the bodies of the bacteria and consequently interferes less with the generation of antibodies.

A 25 per cent. solution of galactose killed cholera vibrios in one to two hours, streptococci and diphtheria bacilli in six hours, tubercle bacilli in four or five days, and typhoid bacilli in less than seventy-two hours.

Disease Among Alien Emigrants in Glasgow.—Dr. A. K. Chalmers, medical health officer for Glasgow, in a report to the city council calls attention to grave defects in the housing and inspection of aliens detained in Glasgow while waiting for the steamer to convey them to America. He referred particularly to the case of a Russian Jew, who was admitted to the isolation hospital suffering from smallpox. The man arrived from Russia via Rotterdam and Grangemouth on March 22, and with four others was acommodated in one of the hotels of the city. On the same evening he visited the shop of a fellow-countryman who, observing an eruption on his face, took him to another hotel which is also used by emigrants and at once communicated with the medical officer of the shipping company concerned. In this latter hotel the patient was detained in a room by himself, but in the previous hotel he occupied two rooms in succession and had opportunities for mixing with between 400 and 500 people who were accommodated in the hotel. The aliens act of 1905 holds the shipping companies responsible for the completion of transit of such persons as they have introduced into this country, but while in Glasgow, as this case illustrates, infection from a smallpox patient may reach a considerable section of the resident population before its presence is recognized. The *Lancet* states that it would seem desirable that so long as this traffic continues these emigrants should be housed by themselves and regularly inspected so that the public may have a reasonable degree of protection against imported disease. There is no daily medical inspection of emigrants, although the interpreters employed are expected to report at once any case of sickness coming under their notice.

Fifth German Congress for Orthopedic Surgery.—One of the features of this congress, which was held at Berlin in the first week of April, was the application of water power in orthopedics. The apparatus constructed for the purpose by Machol of Garré's clinic, Breslau, was briefly described in THE JOURNAL recently, on page 839. In his report of the congress in the *Deutsche med. Wochft.* for April 19, Muskat refers to it as an ingenious application of valve pumps which allows the use of a new source of power for active and passive movements, surpassing in simplicity and cheapness all other methods to date. Another interesting feature of the congress was the presentation by Finck of Charkow, in Russia, of 3 patients cured of Pott's disease and hump by prolonged lying in a plaster bed with gradual over-correction of the hump. He has thus treated 66 patients, and 52 are completely cured with no trace left of the hump. The others are cured, with 2 exceptions, but he does not call these cases entirely successful. Muskat refers to his work and technic as indicating important progress in conservative orthopedic surgery. It is the result of many years' experjence. Finck assumes that the hump is the result of contraction of ligaments more than of muscles, and that reduction can not be realized by traction, but only by gradual action of dorsoventral pressure. This reduces the hump by retracing the steps that produced it. This he accomplishes by means of a pad of folded compresses, forming a cross, placed in the plaster bed beneath the hump. The spine is more amenable to reduction when horizontal. Very slowly, not until after several months to a year, the hump thus becomes reduced, and then a celluloid corset is applied, retaining the pressure on the hump. The patient is not allowed at first to be up more than half an hour, to a maximum of six hours. The entire treatment requires three or four years before the patient is finally dismissed, but the results are brilliant.

Thirty-fifth German Congress of Surgery.—This congress convened at Berlin April 4; the surgical experiences gathered during the Russo-Japanese war opened the proceedings. Among the points emphasized by the Russian surgeon, Zoege von Manteuffel, was that the battles are mostly in the night, and that the wounded always leave the field by the route they took in going. He trephines at once all tangential skull wounds, but not the diametral. Bergman of Berlin commented on the little progress that has been made in military surgery since the Russo-Turkish war. All agreed on the value of immobilization of wounds in the joints and restriction of primary operations. Sauerbruch reported that hemorrhage could be prevented in experimental operations on the skull by arranging the skull part of the head in his air cabinet, under overpressure, with the rest of the head outside. Rehn and König advocated partial resection of the thymus if it interferes with respiration, the latter presenting a child whose thymus had been removed in infancy for thymic asthma, and rickets developed. Krönig reported excellent results from a combination of spinal anesthesia with the scopolamin-morphin technic for gynecologic operations. The greatest interest, perhaps, centered in the experiences reported in regard to passive congestion in the treatment of acute inflammatory processes. Bier stated that he had applied it in 1,500 cases. Before adopting this treatment he had never been able to save a tendon bathed in pus, while under the artificial hyperemia he had now a record of 17 complete recoveries in 25 cases of suppurative processes in the tendon sheaths. Küster styled the method the greatest progress in surgery since Lister's discovery. Bardenheuer remarked that he had not been successful with the method until he sent for one of Bier's assistants to show him the correct technic. Since then his results had been fine. He had been able to save 5 out of 7 cases of phlegmon of the tendon sheaths. Thole of Dantsic asserted that we have no means of dosing this method, and that it has no scientific basis, but he was interrupted by murmurs of disapproval to such an extent that the president of the congress, Körte, of Berlin, had to call the meeting to order. The *Semaine Médicale* for April 11 and 18 has a full report of the congress, and our German exchanges are publishing reports in lengthy installments.

Organization of the Profession in Italy.—A most remarkable congress was recently held at Rome, which signifies much for the progress of the profession and its organization in Italy, as also for the public health in general. The group of physicians in the national legislature, the famous "Fascio Medico Parlamentare," arranged what they called a sanitary congress, and summoned all the district doctors, veterinarians and pharmacists throughout the country to a conference. The Italian laws require that each community or group of very small communities must have a salaried physician and midwife. The physician is appointed and discharged by the local authorities, and the overcrowding of the profession and sharp competition have reduced the salaries below the living point among other abuses. The conference was summoned to discuss these and other matters and suggest legislation. In his opening address Baccelli described the peculiarly favored position of the physician in ancient Rome. He was exempt from military and civic duties; his property could not be seized for debt, and any one who injured or defamed him had to pay a large fine. The number of physicians in a place was regulated by law, and the rulers of the city were responsible for keeping the number within the legal limit. Four thousand sunburned and weatherbeaten district physicians from all parts of the country to the remotest hamlets gathered at Rome in March in response to the official summons, and the proceedings, although not strictly parliamentary, yet amply accomplished the aims of the organizers. One resolution voted was for legislation which would give a legal, official standing to associations of physicians. The minimal salary to be paid by a community was also voted as 200 lire a month (about $40). Another resolution was for the adoption of uniform conditions for applicants for the position of district physician. Heretofore the communities were free to make any exactions and conditions they chose. A plea for Sunday rest was also made. This great convocation enabled the medical men in parliament to come into closer touch with medical conditions throughout the country and with the needs of the populace and their physicians than could have been obtained in any other way. It was also a great event for the district doctors. The membership fee of $1 (60 cents for members of the family) entitled to a reduction of 75 per cent. on all lines of transportation throughout the country for forty days.

Baccelli and the Great Policlinico at Rome.—The *Gazzetta degli Ospedali* for April 15 is devoted entirely to an illustrated description of the great public hospital and clinical school, the Policlinico, which owes its inception to Guido Baccelli and was formally inaugurated on the fiftieth anniversary of his entry into the practice of his profession. The occasion was celebrated as an opportunity for homage to Baccelli, and a gold tablet, bronze laurel wreath, doctoral diamond ring, etc., were presented to him with ceremonies of a national and international character. The king of Italy presided, and addresses were made by Riehl on behalf of Austria, by De Mayer for Belgium, Bouchard for France, Livierato for Greece, MacAlister for Great Britain, De Bildt for Sweden, and Koranyi for Hungary. Congratulations were also wired from the United States and Germany. The *Gazzetta* states that the Policlinico is the largest single clinical school in Europe, and that only some of those in the United States can be compared with it. The grounds cover an area of 160,000 square meters, and are out-

side the city proper, on an eminence. The various clinics are separate, but with a connecting corridor, each a two-story building with amphitheater in the central part, corridors each side and two wards in the pavilions at each end. The buildings are heated by steam, which is also used for disinfecting the operating rooms, etc. Besides Baccelli's contributions to medical science, mentioned recently in these columns on page 1044, the addresses emphasized his important work as senator and then as minister of public instruction, minister of agriculture, delegate to international congresses, etc. He introduced elective courses into the universities and dispensed with examinations for the students standing highest in their classes, allowing them to complete their courses with regular study instead of the tumult of examination days. To him Rome owes the recent excavations in the Forum and at Pompeii, and the establishment of the Gallery of Modern Arts and the Historical Institute. He founded the first chair of agrarian bacteriology, and it was during his term as minister of agriculture that the antimalaria legislation was framed and adopted. The Policlinico is regarded as his greatest triumph, as it embodies advanced ideas in many respects. The cornerstone was laid in 1888 and it is not yet entirely completed. The *Gazzetta* gives illustrations of the Boston City Hospital and of some other American institutions for comparison, remarking that the arrangement of the Johns Hopkins Hospital is most like that of the Policlinico. It refers to Boston as "the Athens or rather the Edinburgh of the United States, whose medical school enjoys a reputation surpassing that of its rival cities, New York and Philadelphia."

The German Day Health Resorts.—Germany now has 30 of the fresh-air daytime sanitariums, for men or for women, first introduced in 1900. The patients sleep at home, but spend nearly all their waking hours at the resort, which is in some accessible forest glade near the town, on some trolley or suburban road, which usually grants reduced rates to the bearers of the sanitarium admission ticket. A lunch is given free in the forenoon and afternoon, and a good dinner at noon; other food can be obtained at any time at minimal rates. There are few regulations except that all must keep still in the reclining chairs for two hours after dinner, and that smoking is prohibited. At first the resorts were kept open only in summer, but the success of keeping one near Berlin open all the year around has been so marked that the others will probably follow suit. The persons taking advantage of these resorts are mostly tuberculous and are either waiting to be admitted to a sanatorium or recently dismissed from one, or do not wish to go to a sanatorium. These resorts are probably one of the manifold results of the compulsory insurance of wage-earners in Germany. The insurance companies find it cheaper to bend their energies to cure their policyholders than to pay indemnities for disability. Some of the German cities have placed one of the public schools in some outlying woodland location, and children who are found to be candidates for or already affected with tuberculosis, rickets or scrofula are allowed to attend this school. The school work is kept up regularly, but much of it is done out of doors. The lesson hours are short, with frequent long recesses for play, out of doors or in open pavilions, and nourishing meals are given the children. The success of the school at Charlottenburg has surpassed all anticipations. It has encouraged the authorities to establish another, which was formally opened April 17, principally designed for children with rickets. This school has dormitories where the children sleep at night, so as to give them the benefit of the country air both night and day. An article in the *Lancet* for April 14 gives the impressions of a visitor to some of these day health resorts. They are erected by the Red Cross Society, but the expenses for maintenance are met by private subscriptions and by the sums paid *per capita* by the insurance companies which send the majority of the patients. The Germans call these day health resorts *Walderholungsstätte*, whose syllables allow a glimpse of woodland wilds, recovering health, taking recreation and amusement and retrieving damage. The article in the *Lancet* discusses the advisability of the introduction of the system into Great Britain, remarking that the local trades unions, sick clubs and lodges may in time also find it to their pecuniary interest to help cure their policy-holders instead of paying sick benefits. If they undertake the task they will soon find that true economy means the greatest thoroughness in this case.

LONDON LETTER.

Death of an Englishman from Sleeping Sickness.

One of the first English victims of sleeping sickness is Mr. John Mahon, who has just died at University College Hospital. About three years ago he was superintendent of the botanic gardens at Entebbe, Uganda, when he was bitten by a tsetse fly. He was invalided home for an undefined complaint which proved after some months' residence in England to be sleeping sickness. For the first 18 months after his return he performed some light duties at the Colonial Institute. After that the torpor of the disease seized him. He wasted to a skeleton. Another victim to the disease is Lieutenant Forbes Tulloch, who has been invalided home from Entebbe.

Rat Fleas and Plague.

Some very striking experiments have been conducted at Bombay to prove that rat fleas carry plague, not only from rat to rat, but from rat to man. In a room in which a rat dead from plague had been found animals were placed in cages. Some of the cages were protected by fine metallic gauze to keep away the fleas. The unprotected animals sickened and died of plague and rat fleas infected with plague were found on them. The protected animals escaped. The health authorities of Bombay are taking active measures with regard to rats found in the streets and houses. Where plague rats are found the houses are marked and disinfected and the occupants are warned.

Sir Thomas Browne's Skull.

At Norwich the question of the reinterment of the skull of Sir Thomas Browne, the author of the "Religio Medici," which has long been preserved at the Norfolk and Norwich Hospital, was discussed at the annual meeting of the governors of that charity. Sir Thomas Browne, who lived at Norwich in the middle of the seventeenth century, was buried in the Church of St. Peter, Mancroft. During the early part of the last century when an interment was taking place in the adjoining vault his grave was accidentally broken into. It is alleged that the skull was abstracted, and after passing through various hands became the property of the hospital authorities, who latterly have preserved it in a handsome reliquary presented for the purpose by Professor Osler, who is one of Browne's most devoted admirers. Recently there has been a considerable expression of opinion at Norwich, backed up by the vicar and church wardens of St. Peter, Mancroft, that the skull ought to be returned to the tomb whence it was taken. The hospital governors unanimously passed a resolution agreeing to this course on condition that the tomb should be opened in the presence of representatives of the hospital with a view to satisfying them that the remains therein are without a skull.

Action by a Midwife Against a Physician.

An action has been brought in Ireland against a physician by a midwife under peculiar circumstances. She attended a woman in her confinement, which was quite normal. A few days later she attended another case, in which the mother died of sepsis. For several days she attended both cases, and after she had ceased attendance on the first case the infant developed suppurative omphalitis, from which it died. Two days before death it was taken to the physician in a dying state. He prescribed one-half grain doses of gray powder. He certified the cause of death to be "spreading cellulitis." The parents asked what this meant and he said blood poisoning. The father immediately connected the death of the child with that of the other patient of the midwife, who had died of sepsis, and said that she had communicated the disease and that he would take action against her. He reported the case to the public health authorities, who sent for the nurse's clothes in order to have them sterilized. The midwife considered that this was detrimental to her practice and brought an action for damages against the parents of the child, two relatives and the physician. The cases were very protracted. The chief point relied on by the plaintiff was that the physician first diagnosed syphilis and that he altered this diagnosis out of spite against the midwife because she advised patients of his to seek advice elsewhere. The midwife contended that the administration of mercury showed that the child suffered from syphilis. This notion was, of course, easily refuted. A verdict for the defendant was returned.

The Prevention of Sleeping Sickness.

Dr. J. L. Todd, who has been several years on the west coast of Africa investigating sleeping sickness and other tropical diseases on behalf of the Liverpool School of Tropical Medicine, delivered an address before the members of the African trade section of the Liverpool chamber of commerce on "The Danger of the Spread of Sleeping Sickness Through Africa and the Necessary Measures for Its Prevention." He said that from 400,000 to 600,000 natives have died from the disease during the last ten years. In the opening up of the

country sleeping sickness took a great extension. It is along the much used routes that the disease has spread and is spreading. The way in which it has been recommended that the disease might be combated in the Congo Free State is by the establishment of medical posts of inspection along the most traveled trade routes and the transportation of infected persons at present living in uninfected districts to localities already infected. In the Congo it was found that enlargement of the cervical glands without obvious cause in natives might be taken as a sign of sleeping sickness and, therefore, every employer of labor should be informed of the significance of this symptom. It was decided at the meeting to send a resolution to the colonial secretary calling the attention of the secretary of state for the colonies to the alarming spread of sleeping sickness in British and foreign areas in Africa, and to the desire of the African trade section of the Liverpool chamber of commerce that steps should at once be taken in conjunction with other African powers to investigate and, as far as possible, arrest the progress of the disease.

The Health of the City of London.

The report of the health officer for the city of London for 1905 has just been issued and contains much interesting information. The night population of the famous "square mile" at the middle of that year was 22,425, although the day population was estimated at 369,380. It is unsatisfactory to find that 23 per cent. of the samples of milk examined were found unclean, and that a further 9 per cent. were tuberculous. The principal railway companies with one exception have recast their by-laws during the year and made spitting on platforms, booking offices, etc., or in railway carriages, a punitive offense. The penalty is a fine not exceeding $8 for a first offense and not exceeding $40 for any subsequent offense. Many hair dressers have availed themselves of the decision of the corporation to grant voluntary certificates of the sanitary condition of their premises, and those who first opposed the movement now recognize the advantage of falling into line with those who have been placed on the register. The production of ice creams—a trade almost entirely in the hands of Italians—has been controlled, and no case of illness attributed to eating ice cream has occurred. The report contains a good deal about the sophistication of butter. Certain traders sell an article containing as much as 25 per cent. of water, which has been ingeniously incorporated with genuine butter, and is sold as "milk-blended butter." The makers protect themselves from prosecution by disclosing the fact that the article is a mixture, but the ordinary buyer is not likely to know that the milk added contains from 86 to 88 per cent. of water. The buyer is deceived, and thinks that he is buying cheap butter, but the quantity of water present makes it dear. Another disadvantage is that the keeping properties of the butter are diminished by the addition of the water, especially during warm weather. The sale of this stuff has opened the door to another sophistication—the admixture with butter of skimmed milk and cocoanut oil.

The Government and Vaccination; the Jenner Society's Suggestion.

The report of the executive committee of the Jenner Society for 1905 is of special interest, in view of the fact that with the advent to power of the liberal government there is renewed activity in antivaccination circles. Established in 1896, the society has done much to demonstrate the value of vaccination. Among the honorary vice-presidents are Lord Lister, Sir W. Huggins, Sir W. Turner and Dr. Ferguson (ex-president of the B.M.A.). The vaccination act of 1898 was avowedly an experiment, and was therefore enacted for only five years. It would have ceased to operate last year, but was kept alive for another year by the expiring laws act. The government must take action during the ensuing session, but as the time is already mortgaged for more pressing questions there will be no time to discuss a vaccination bill. It may be concluded, therefore, that the act will be kept alive for another year, but with an explicit promise of legislation in 1907. During the interval the government will have ample opportunity for gaining information of the weak points of the act and of other matters involved in the administration of vaccination with which the act did not deal. The Jenner Society suggests that preliminary to such legislation the government will do well to institute a formal inquiry, preferably by a special commission, into the whole subject of vaccination administration, for it is much more to the defects of its administration than to any disbelief in the protective value of vaccination itself that the practice owes any unpopularity it may have acquired. The necessity of meeting the agitation against vaccination is emphasized: "That the country which gave birth to this great discovery should be left a prey to the unchallenged vituperation of Jenner and to the mischievous deprecation of his work would be as grave a discredit to it as it would be a deplorable abnegation of duty."

The Lowest Birth Rate on Record.

The decline of the birth rate which has been evident in recent years continues to be shown by the most recent statistics. The report of the registrar general for 1904 has just been issued. In the middle of that year the estimated population of England and Wales was 33,763,434, of whom 16,316,647 were males and 17,446,787 females. The marriage rate was 15.2 per 1,000—.04 below the rate of 1903 and .06 below the average of the ten years 1894-1903. The birth rate was 27.9 per 1,000—the lowest on record. This was .05 below the rate of 1903 and 1.3 below the average of the last 10 years. Since 1895, when the birth rate was 30.3, it has gradually declined. The death rate was 16.2, which was 1 per 1,000 below the mean rate of the 10 years 1894-1903. The deaths of infants under one year were in the proportion of 145 per 1,000 births, as compared with 132 in 1903 and 150 in the 10 years 1894-1903. The proportion in 1904 was higher than in 1902 and 1903, but lower than in any other years since 1894. Among the deaths were 59 reputed centenarians—17 males and 42 females. Deaths from smallpox numbered 507—a rate of 15 per 1,000,000 of the population. Chickenpox is said to have caused 104 deaths, but it is thought that most of these were due to smallpox; 28 deaths were due to cowpox or other effects of vaccination. Deaths from tuberculosis numbered 60,205—3,526 less than the average of the previous 10 years. The deaths from cancer showed an increase; they numbered 29,682 and exceeded by 2,461 the average of the last 10 years. The deaths of 2,523 men and 822 women were attributed to suicide, the figures in both cases exceeding the average.

Award of Prizes by Royal College of Physicians and Surgeons.

The Council of the Royal College of Surgeons has awarded the Walker prize of $500, instituted to encourage investigation into the pathology and therapeutics of cancer, to Professor Jensen of Copenhagen. The committee appointed to advise the council in reference to the award reported that after receiving valuable advice and assistance from eminent American, Belgian, Danish, French, German, Italian, Swedish, Swiss and British surgeons and pathologists regarding the work in their respective countries, and after carefully examining papers on the pathology and treatment of cancer published in various languages during the last five years, they found that in any report presented to the council much important work could not be considered because it had not been done within the prescribed time limit; because it had no direct bearing on the treatment of cancer; because it was still being pursued and the prize could scarcely be awarded to it at this stage of its progress. In recommending Professor Jensen, the committee quoted the description of his work from a letter of Professor Salomonsen of the State Serum Institute of Copenhagen: "The inoculation of cancer from animal to animal had been made in comparatively few cases, and therefore afforded no decisive material for the study of cancer. Professor Jensen first succeeded in discovering a tumor in the mouse which made the experimental investigation of cancer on a large scale possible. He first carried out a large series of inoculations through 35 generations, comprehending about 1,000 mice, and thus gave the impulse to certain experimental investigations which are now being carried out in different parts of the world. He thus made it possible to investigate, and was the first to investigate systematically, the effect of different factors (heat, light, chemical agents, radium, etc.) on the cancer cells. He further demonstrated the possibility of producing an anticancer serum for mice by the injection of the crushed tumor into rabbits. The serum of rabbits thus prepared has been injected into mice suffering from cancer, with the result that the cancer tumors in many of them disappeared permanently." The Jacksonian prize for 1905 was awarded to Reginald Cheyne Elmsley, M.S., F.R.C.S., for his essay on "The Pathology and Treatment of Deformities of the Long Bones Due to Disease Occurring During and After Adolescence." The subject for 1907 will be "The Operative Surgery of the Heart and Lungs, Including the Pericardium and the Pleura." The subject selected for Cartwright prize for 1906-10 is "The Prevention of Dental Caries." Dr. Lucas Championnière of the Hotel Dieu, Paris, was elected as honorary fellow of the college. The honorary medal of the college was awarded to Lieut.-Col. Sir Havelock Charles, I.M.S., in appreciative recognition of his gift of anthropologic specimens—an addition to the museum of special value not only on the account of the number and variety of the specimens, but also on account of the authentic particulars attached to them.

Pharmacology

The Physician and the Pharmacist.

As has been emphasized repeatedly, the true function of the pharmacist has been sadly curtailed by physicians prescribing ready-made proprietary mixtures. In too many localities the pharmacist has found that the work for which he had been educated, that of compounding physicians' prescriptions, was not called for; that the filling of prescriptions too often had become merely the handing over the counter of some ready-prepared nostrum, which he well knew was, if not a fraud, at least no better than he could have easily compounded. He not only lost respect for, and confidence in, physicians, therefore, but naturally turned his attention to something else. And so the ordinary drug store has become almost everything except a place for compounding physicians' prescriptions; and the pharmacist instead of being the assistant of the physician has become in too many instances his competitor. As the movement has progressed for more sane prescribing by physicians, the pharmacists have become interested and are moving for reform in their ranks. We have noted the organization of local branches of the American Pharmaceutical Association in Chicago and Philadelphia, and last week a similar organization was started in Washington, D. C. Our correspondent tells us that 23 out of the 39 Washington members of the American Pharmaceutical Association were present and that much interest was manifested. A temporary organization was effected, and a committee was appointed to draw up a constitution and by-laws and to communicate with the officers of the national and other branch associations.

The meeting of the Philadelphia Branch of the American Pharmaceutical Association, held April 24, at the College of Physicians, was largely devoted to a discussion of the relations existing between physicians and pharmacists with a view of bringing the latter in closer touch with and more in harmony with the ideas, ideals and present requirements of members of the medical profession. Among the subjects discussed were: "The Discontinuance of the Indiscriminate Renewal of Prescriptions," "Discouraging the Sale and Use of 'Patent Medicines' or Nostrums," and " The Desirability of Endorsing and Assisting the Council on Pharmacy and Chemistry of the American Medical Association." In speaking on the last subject, Henry Kraemer, professor of pharmacognosy in the Philadelphia College of Pharmacy, said:

> The importance of endorsing and assisting the Council on Pharmacy and Chemistry is such that I feel that it should be given due consideration at this time, and that this branch should go on record, at a very early date, as being in favor of the principles that are evolved. As is well known, the American Medical Association has instituted a Council on Pharmacy and Chemistry, whose object it is to inquire into and to report on the composition, claims and reliability of the proprietary preparations that are now being exploited through the medical profession. That some regulation of the present traffic in proprietary preparations is necessary, and desirable, is apparent when we remember that from a small and quite unostentatious beginning, less than three decades ago, the traffic in these so-called ethical proprietaries has increased and developed until to-day they rival "patent medicines" in number, and, if anything, excel them in the number and the variety of exorbitant claims and misleading statements.
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> The object of this council is not to commend or to condemn proprietary medicines, but simply to point out the shortcomings and the errors in connection with the more objectionable articles and to enumerate, in a proposed book or phamplet, such of the new and non-official remedies as meet with the several provisions of the rules that have been adopted for the guidance of the council. These rules, it may be added, are thoroughly in harmony with the constitution and the principles of the American Pharmaceutical Association, and it will not be necessary, therefore, to discuss them in detail at this time. Suffice it to say, that all that is required is the elimination of false and misleading statements from the labels and advertising matter and the publication, in place thereof, of demonstrable facts as to the composition, uses and limitations of the several preparations.
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> That secrecy is not an absolute necessity for commercial success is evidenced by a large number of really excellent proprietary preparations, but is perhaps best illustrated by the successful and, at the same time, eminently honorable career of the late Dr. E. R. Squibb, who was for many years one of the most active and most highly respected members of the American Pharmaceutical Association.
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> From his first venture in business, for himself, Dr. Squibb gave the fullest and most complete publicity not alone to his formulas, but also to the most minute details of his processes, and despite this liberality, or perhaps because of it, he was enabled to develop a huge and profitable business, that, in all of its various phases, was successful beyond the question of a doubt.
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> It may, of course, be suggested that conditions have changed and that to-day it would be practically impossible to establish a successful enterprise on the lines followed by Dr. Squibb. This suggestion is best controverted by the fact that the American Medical Association has found it to be desirable to institute this advisory council to inquire into the status of several proprietary remedies that are now being offered with a view of eliminating, or at least restricting the sale of, such of the articles as do not meet with the requirements of the adopted rules.

Dr. Miles Medical Company vs. The May Drug Company.

The Pittsburg *Legal Journal*, April 11, 1906, gives the text of an important decision by Judge Macfarlane in the above case. The Miles Medical Company, to enforce its rule that its remedies should not be sold under a certain price, fixed by contract with certain retailers, brought suit in equity against the May Drug Company, proprietors of a cut-rate drug store in Pittsburg, who had obtained these remedies at reduced rate of Louis Hoechstetter, of Sehring, Ohio, thus causing him to break his contract and to injure the plaintiff. It appears that the Miles Medical Company manufactures and advertises certain remedies which it claims will cure affections of the heart and of the nervous system generally recognized as incurable, that it had spent about $2,000,000 in advertising, that its sales amount to over $500,000 each year and that it maintained a bureau of free medical advice, by which it pretended to make diagnoses of heart disease without physical examination and without seeing the patient. The plaintiff's representations that its remedies are a cure for heart disease, epilepsy and rheumatism are regarded by the court as untrue and calculated to deceive the public.

In regard to the law the opinion of Judge Macfarlane holds that the contract made with Hoechstetter is not in restraint of trade, and it seems that the defendants should be enjoined, but for other facts and conclusions of law. The false statements of the plaintiff, however, bar its action and its business as against public policy. Its advertisement of a cure for secret or venereal disease and for the cure of diseases peculiarly appertaining to females is contrary to Pennsylvania statutes and prevents it from obtaining relief in a court of equity.

The judge says:

> On the argument the position was taken generally that the vendor or manufacturer of a proprietary medicine whose ingredients were secret had no standing in a court of equity. When this suggestion was made on the preliminary hearing we had no evidence as to the plaintiff's products and mode of business other than the general testimony of its witnesses.
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> The courts have frequently supported bills of such plaintiffs, but in many cases, no doubt, the question was not raised. On further consideration it is our opinion that the public health requires protection against these preparations and that the vendor of remedies of unknown ingredients advertised and sold as remedies for diseases should not be aided by courts of equity. If he sees fit to keep them a "trade secret" and to persuade the public to "dose" with his mysteries, let him not come into chancery.
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> We take judicial notice of the facts of medical science which are known to intelligent persons, although not educated as physicians, but we need not go even so far in finding that the plaintiff can not cure incurable cases. Were it necessary for the disposition of this case we might go even further than we have in the fifth finding. The averment of the bill that their preparations "are intended to be and are a consistent comprehensive system of remedies and medicines," and "each of said remedies being indicated as a specific for certain kindred ills and diseases," may bear different constructions, but in its ordinary meaning is startling and needs something more than its statement to carry conviction.
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> Although these defenses were not set up in the answer, when it appears that the plaintiff's business is based on misrepresentations or when it appears, as we find on examining the pamphlet sent out with its medicines, that it is violating a criminal staute and is conducting a business contrary to public policy, it needs no authority that it is the duty of the court to deny relief. . . .
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> Its "medical experts" are attempting to prescribe at long range. The attempt to diagnose cases of heart disease, for example, without a physical examination can not be too severely reprobated. We do not need to be told by medical authority, our own knowledge informs us, that not only a careful examination but great skill is needed to detect the numerous valvular and other diseases of the heart. Further, any intelligent, thoughtful person knows that many of the symptoms listed by the plaintiff are caused by other diseases or disorders. For one sick to diagnose his own case is the

height of folly, yet this plaintiff advises the poor deluded victim to pass on subjects often baffling to the highest medical skill, to settle the disease and then to take "Dr. Miles' Nervine or Heart Cure" or some other high-sounding preparation of unknown ingredients, recommended in glowing "testimonials." . . .

The enormous business done by the proprietors of medicines and the serious menace which it is to the health and lives of the public require us to scrutinize carefully the ground on which the plaintiff stands, and as it has been shown that it belongs to a reprehensible class we decline to grant it a decree.

Societies Take Action.

At its regular monthly meeting, held April 11, 1906, the Warren County (Ky.) Medical Society passed the following resolution:

WHEREAS, Through the carelessness, negligence and ignorance of the doctors and people of this country and the criminal cupidity of certain low-grade drug manufacturing establishments the country has been flooded with nostrums, many of which are highly dangerous to innocent users, and many others entirely useless and inert, thereby causing harm to persons using them by delaying the proper treatment of their diseases; and,

WHEREAS, The American Medical Association has established a Council on Pharmacy and Chemistry, composed of eminent, disinterested pharmacists, whose duty is to analyze drugs and pharmaceuticals from reputable manufacturers, so that the profession may be properly advised of the constituents of such preparations. Now, therefore, be it

Resolved, By the Warren County Medical Association that we hereby endorse the creation of the Council on Pharmacy and Chemistry by the American Medical Association and its plans, rules and purposes, and that we pledge the people of Warren County that its physicians will not administer or prescribe any nostrum or medicament the exact contents of which are not known to all men.

A. T. MCCORMACK,
J. H. BLACKBURN,
E. RAU,
Committee.

At a meeting of the McLeod County (Minn.) Medical Society, held at Glencoe, April 12, a resolution was adopted expressing satisfaction with the work of the Council on Pharmacy and Chemistry on the nostrum evil and a desire for its continuance.

The Rutherford County (Tenn.) Medical Society, at its regular monthly meeting, held May 2, adopted the following resolutions:

WHEREAS, The Council on Pharmacy and Chemistry of the American Medical Association, acting by the authority of that organization, is carrying on a campaign of education regarding the use of nostrums by physicians, and is investigating the various products offered to physicians as remedial agents, the purpose of which is to defend the decency and dignity of the medical profession for the benefit of all the people against nostrum prescribing, advertising and selling. Be it therefore

Resolved, That the Rutherford County Medical Society heartily commends the work undertaken by the Council on Pharmacy and Chemistry of the American Medical Association; Be it further,

Resolved, That the society condemns the practice of prescribing and advertising secret remedies of any kind, and be it

Resolved, That a copy of these resolutions be forwarded to THE JOURNAL of the American Medical Association.

At a meeting of the Waterbury (Conn.) Medical Association, held April 9, the following resolutions proposed by Dr. W. L. Barber were unanimously adopted:

Resolved, 1. That the members of the Waterbury Medical Association hereby agree to support with cordiality the efforts of the New Haven Medical Association in its campaign against the sale of all nostrums, and that we approve heartily the action of the American Medical Association in establishing the Council on Pharmacy and Chemistry for the purpose of investigating and reporting on all non-official drugs. 2. That we heartily commend the action of these journals, medical or secular, and will in every way help them in the educational campaign now being carried on against the manufacturing of all secret medicines or mixtures with unknown formulas.

The Auglaize County (Ohio) Medical Society, at a meeting held April 12, adopted the following resolution:

Resolved, That the Auglaize County Medical Society heartily endorses the stand taken by *Collier's Weekly* and the *Ladies' Home Journal* on the "patent-medicine" fraud, and that we give them our support in the self-sacrificing fight that they are making to enlighten the public as to frauds as practiced by "patent-medicine" concerns, also that every member of this society should show his appreciation by becoming a subscriber to these two journals.

At a meeting of the San Luis Valley (Colo.) Medical Society, held April 20, resolutions were passed heartily endorsing the good work of the Council on Pharmacy and Chemistry in its fight against the nostrum and proprietary-medicine evil.

Similar resolutions were adopted by the Fifth District (Wis.) Medical Society at a meeting held at Brillon, April 12, and by the Dallas (Texas) Medical and Surgical Association.

Letters of Endorsement.

Dr. R. J. Owens, Will Spring, Mo., writes:

"I am heartily in sympathy with the Association in the war on the nostrum evil and am willing to contribute my energies in fighting it."

Dr. W. H. Woodworth, Delaware, Ohio, writes:

"We are pleased with your work and the crusade against frauds, although we have shown the fact poorly."

Dr. C. F. Engels, Ballard, Wash., writes:

"With full and cordial sympathy for THE JOURNAL'S efforts to enlighten the profession regarding the nostrum evil."

Dr. Calvin N. Weidner, Manchester, Conn., writes:

"I am very much pleased with the stand THE JOURNAL has taken on the "patent medicine" and proprietary drug business. I think your articles on "The Physician and the Pharmacopeia" are excellent and very helpful, as they contain the kind of knowledge none of us can have too much of. If we as practitioners understand our pharmacopeia as we should, the proprietary firms with their wonderful mixtures and free samples would find a barren field in which to labor. It is to our everlasting shame that we let them teach us our materia medica."

Dr. W. J. Wilson, Jr., Detroit, writes:

I wish to compliment the Association on the work it has done and is doing anent "patent" and proprietary medicines. It seems to me that at this juncture no greater service can be done for the rank and file of the profession. Some mud-slinging was to have been expected, but it will only serve to besmirch the hands of those who throw, and at the same time will display the position of the enemy. The Association is as much to be congratulated on its foes as on its friends. I am sure that the Association will win in this contest and will secure great additions to its membership as outsiders see evidences of its practical value in this way.

Insurance Examination Fees

The Minimum Fee.

At the annual meeting of the Montgomery County (Md.) Medical Society, April 17, a resolution was adopted fixing $5 as the minimum fee to be charged for examining an applicant for life insurance, when a full examination is required.

The Fee Problem in 1870.

It may be of interest at this time to quote from the minutes the following preambles and resolutions adopted by the American Medical Association at its meeting held in 1870 at Washington, D. C.:

"On motion of Dr. C. T. Collins, of Massachusetts, the following was unanimously adopted:

"WHEREAS, The business of life insurance has already become one of great magnitude in the United States, and is daily increasing in importance, affording large profits to those interested; and

"WHEREAS, The responsibility assumed by the medical examiners does not seem to have been heretofore properly appreciated by the different companies; therefore,

"*Resolved*, That this association recommend that the sum of five dollars should be the lowest amount charged for every such examination."—(Tr., vol. xxi, 1870, p. 34.)

Fees for Life Insurance Examinations.

BROOKINGS, S. D., March 31, 1906.

To the Editor:—I enclose a letter from the medical director of the Mutual Life Insurance Company of New York, and a copy of my answer. It seems to me that it is high time that the profession should take some concerted action in matters of this kind. Therefore, I wish, through the columns of THE JOURNAL, to appeal to the medical profession of the United States to refuse to be dictated to in any such manner. An opportunity is before us to demonstrate that skilled medical service is not to be bought in the open market like pork.

J. G. PARSONS.

THE MUTUAL LIFE INSURANCE COMPANY OF NEW YORK.

NEW YORK, March 27, 1906.

Dr. J. G. Parsons, President E. D. Medical Society, Brookings, S. D.

Dear Doctor:—Your favor of recent date replying to one which I wrote Dr. F. B. McGarvey, of Cavour, S. D., is at hand.

I enclose copy of the fee schedule which has just been put into effect in this company.

The practical significance of the new fee schedule lies in the fact that it reduces the average fee for a medical examination from $5 to something over $3; how much over three dollars the average fee will be, can not be stated now, for it depends on the number of applications in the larger amounts and also on the extra allowance of $1 for each additional specimen of urine obtained by order of the company. Under the old flat fee of $5 no extra allowance was made. This retrenchment looks like a small matter, but owing to the large number of examinations now made for this company, it will effect a substantial saving to the policy-holders. That statement is a sufficient reason for the company's desire to establish this new schedule.

Rigid economizing is now being done in all departments of the company, so that this retrenchment is only one of many. The medical examiner must bear in mind that his fee is paid by the policy-holders, even though his bill is presented to the company, for this company is not an impersonal corporation, but is a partnership in which every policy-holder participates, both in earnings and expenses. Do not think that the medical departent is practicing economy any more than all the other departments of the company. The heaviest reduction of expenses has occurred among the executive officers, where the president's salary has been reduced two-thirds, from $150,000 to $50,000, and the salaries of the other executive and administrative officers have also been reduced so that the saving effected in this one branch alone amounts to over $200,000. The allowance for advertising has been cut down from over $300,000 to $100,000. The cost of supplies has been reduced over $300,00. The agency expenses have also been materially reduced. The economies that have been and are being made in every department will represent a saving of over one million dollars this year.

The claim was made and substantiated during the recent investigation that too high a price was paid for new business. The company is endeavoring in every way and in every department to reduce this cost of new business, and the medical examiner must not feel that he is being singled out for economy, for such is not the case. Each department sympathizes with its own work and working force, but we are all loyally striving to put the company on such a basis that the charges of extravagance which were made during the late investigation will have no foundation hereafter.

This matter of the medical examiner's fee resolves itself into two questions:

First: Is the fee adequate compensation for the service rendered? It seems to be adequate when measured by the customary fees of competent physicians. This is certainly true of the physicians in country villages and smaller cities. In the larger cities, on the other hand, some physicians may get larger fees than these, and to them the compensation would be inadequate. We can not, however, discriminate among our examiners and pay a larger fee to the city examiner than we pay to the country practitioner, for this would be manifestly unfair to the latter. That the medical profession in this country regard the new fee schedule as adequate is shown by the fact that thus far we have had only 900 refusals as against over 12,000 signed acceptances.

Second: Will the company get satisfactory services for these fees? We have no doubt of this from the experience of other companies which have a graded fee schedule similar to this. This company was rather late in adopting a graded fee schedule. Other companies have had one in force for years.

In the early days of the company, the flat fee of $5 was a small extravagance which did not show owing to the limited number of examinations. Even ten years ago, the burden had become noticeable, though not to a marked degree, owing to the larger size of the application at that time. The medical department of this company resisted any modification of the flat fee of $5 until it was proven beyond question that it was extravagant, and that good service could be obtained for less.

I have written you thus fully to show you the justice of the company's position. Do you think it fair to discriminate against us by charging us $5 for an examination, while you charge considerably less for examinations for fraternal and assessment associations? Is this fair to a company like the Mutual Life, which is fraternal in the highest sense of the term? You surely do not give a less thorough examination for one of these organizations than you do for us? If you are going to be entirely fair in this matter, why do you not charge $5 for all insurance examinations?

I shall be very glad to hear from you further in this matter.

BRANDRETH SYMONDS, M.D.
Medical Director.

BROOKINGS, S. D., March 31, 1906.

Dr. Brandreth Symonds, Medical Director, Mutual Life Ins. Co., New York:

Dear Doctor: I have your letter of the 27th inst. at hand. I note the position you take in regard to the matter, and while it does not concern me personally, I think I voice the sentiment of the physicians in this part of the country when I make reply in the following statements:

The matter of economy in the expenses of your company is not exactly a good matter to discuss here. The relative value of the services actually rendered by Mr. McCurdy and your medical examiners considering the remuneration received, is better discussed elsewhere. The value of medical services rendered is the only thing we have to discuss.

A carefully made life insurance examination is worth $5 if it is worth a penny. It is the safeguard which stands between the company and a possible loss of thousands. The company can not afford to take even a thousand dollar chance in debating over five. Compared with examinations made in practice generally, you must admit that there is here no opportunity for repeated observations. The examination must be made with the greatest care, and time taken to gather all the desired information at once. The report calls for the exercise of professional judgment and greatest accuracy in detailed statements. All these things are of unquestioned value, and are worth, as stated before, $5 if worth a penny.

I do not believe you will get as satisfactory service when you cut your fee from $5 to $3. I make this statement with all respect to medical men everywhere; but I know them to be human, and not necessarily disposed to become altruistic to the extent of two dollars' worth when a business institution like the Mutual Life cuts off two dollars from a reasonable fee under the pretext of "saving." I have a somewhat extended medical acquaintance, most of whom are men whom I highly respect as men and physicians. I think nearly all of them would admit to me in private conversation (as many have) that the services rendered for an inadequate fee do not compare favorably with those rendered for a reasonable compensation, pure charity, of course, excepted.

That this feeling is prevalent among medical men the country over may be inferred from their attitude toward lodge and contract practice. As regards fraternal examinations, I am surprised that an old line company should consider itself in the same class as a fraternal. We are usually given to understand that they are unsafe concerns. I believe that physicians generally give fraternal companies their money's worth, and no more. The bulk of the work done for fraternals is done in "classes," and practically all the writing is done by the "deputy" before the examiner sees the applicants. The actual work done by the examiner is small, and usually very superficial at that. A "deputy" of one fraternal society told me a "good joke" on one of their examiners who had forwarded to the medical director a bunch of twenty-five examinations of a "class." These reports were all returned to the examiner for reconsideration because the specific gravity of the urine in every case was 1020. A rather abnormally normal class! This illustrates the disposition on the part of the examiner to give the *money's worth*. Failure to be careful in details may mean overlooking a vital point in an examination.

You practically admit that you expect greater care in examination when greater fees are paid. You pay $7.50 for examination when the application is for $25,000. You expect just as careful examination for $3.00 when the application is for only $1,000. This extra fee is surely not a gratuity. In five hundred examinations you would save $1,000, but you would run the risk of letting in several poor risks which would make your loss far greater than your saving, by getting only three dollars' worth of examination in cases that needed five dollars' worth.

You mention the fact that under your new schedule of fees the average of fees received would be raised by examining applicants for larger amounts. This would hardly affect the country doctors. They have few opportunities to examine applicants for large amounts. It is largely the fault of the profession that they have not been sufficiently organized to demand higher standards of work and fair fees.

In the case of this society you have an example of an effort to bring about this result. Accordingly, we have made an item in our fee bill placing the minimum fee for life insurance examination at $5. I believe that the physicians of the whole country feel about this matter as we do, but, owing to lack of proper organization have not met the proposition as we have. If the reputable physicians of the United States stood together it would not be possible for any insurance company to take advantage of the curtailing of expenses enforced by recent exposures, to compel their examiners to accept two dollars less than a reasonable fee for their work.

J. G. PARSONS,
President Eastern Dakota Medical Society.

Medical Legislation

Favor Army Medical Reorganization Bill.

At the recent bi-monthly meeting of the Blair County (Pa.) Medical Society at Altoona the following resolutions were adopted:

Resolved, That the Blair County Medical Society believes it is the duty of our government to establish a national health organization and that congress be urged to aid such organization in every proper way in the prosecution of its duties in improving and protecting the public health.

We further trust, by the union of all now existing public health services, soon to have a department of public health with representation in the president's cabinet.

Resolved, That a copy of these resolutions be furnished our United States senators, Hon. Boies Penrose and Hon. Philander C. Knox and Hon. John M. Reynolds, our representative in Congress, with the request that they use every honorable effort to secure the passage of all laws favorable to this subject.

The second resolution was adopted as follows:

WHEREAS, We believe that the present Medical Corps of the Army is entirely inadaquate to look after the health and welfare of our Army in time of war, and that it should be increased to furnish our Army with an adequate number of physicians and surgeons, trained in the care of large bodies of men in camp life and on the march; therefore be it

Resolved, That we urge on our United States senators, Hon. Boies Penrose and Hon. Philander C. Knox and our congressman, Hon. J. M. Reynolds, at Washington, the importance of upholding the army medical reorganization bill and request that they do all in their power to secure the passage of the same.

This resolution was also adopted:

Resolved, That we urge on our United State senators, Hon. Boies Penrose and Philander C. Knox, and congressman, Hon. J. M. Reynolds, that they use all honorable efforts to secure the passage of such laws as will tend to establish institutions for the separate care and treatment of indigent consumptives.

Urge Passage of Pure-Food Bill.

The Elbert County (Ga.) Medical Society, at its regular meeting, March 3, 1906, adopted the following resolutions. A copy has been sent to each member of the House from Georgia:

WHEREAS, There is now pending before the House of Representatives, an act for preventing the adulteration or misbranding of foods, or drugs, and for regulating traffic therein, and for other purposes; and as we believe that such an act is absolutely necessary for the public health; therefore be it

Resolved, By the Elbert County (Ga.) Medical Society, that our representatives in Congress from Georgia are hereby respectfully requested to vote for said bill.

Resolved further, That a copy of these resolutions be sent to each representative from Georgia in Congress.

Correspondence

A Further Note on the Antiseptic Properties of Sodium Aurate.

BOSTON, April 30, 1906.

To the Editor:—In THE JOURNAL, Jan. 27, 1906, I described a non-irritating antiseptic solution, the active constituent of which was believed to be sodium aurate. I showed that this solution possessed strong bactericidal power and that its action was not appreciably affected by the presence of albumin. At that time the antiseptic had been used clinically in only a limited number of cases, but had given most encouraging results. Since then, it has been used in a larger number of cases, and I find that while it is effective in case of acute catarrhal conjunctivitis, its action in severe cases of gonorrheal ophthalmia is disappointing. The cases of the latter affection on which it was first tried were probably of a mild type, and no doubt would have done equally well under the usual methods of treatment. In several of the later cases, even after frequent and prolonged use of the antiseptic, the secretion showed an abundance of gonococci, both in pus cells and in desquamated epithelial cells. It seemed evident, therefore, that the antiseptic either did not penetrate the tissues or that its action was inhibited by the tissue fluids. I find that the latter is the correct explanation. When the 1 per cent. solution is mixed with an equal quantity of human serum (hydrocele fluid) its bactericidal power is immediately and completely destroyed, although no visible reaction takes place. This fact no doubt also explains the non-irritating property of the antiseptic. The test was not previously made because similar tests with egg albumin seemed to render it unnecessary.

The unsatisfactory results attending the treatment of gonorrheal ophthalmia with protargol and argyrol are no doubt to be attributed to a similar cause. I have already shown that argyrol is rendered ineffective by egg albumin; in fact, is precipitated by it when the latter is added in sufficient amount. I have since found that protargol, although not precipitated by albumin, is likewise rendered ineffective by it. Hydrocele fluid does not precipitate solutions of either of these preparations, but nevertheless inhibits their action when added in sufficient amount to satisfy them.

It seems unlikely, therefore, that sodium aurate can be of much real value in the treatment of gonorrheal ophthalmia or gonorrheal urethritis. It is possible that it might reduce the frequency of corneal infection, but this would require a large series of cases to determine. There is no doubt, however, that it is effective in other forms of conjunctivitis, probably because it prevents constant reinfection of the tissues. Whether or not it is more effective than protargol for this purpose I am not yet convinced. It would seem to be a satisfactory antiseptic for the conjunctival sac to be used preliminary to operations, for which purpose I now employ it.

F. H. VERHOEFF.

Colloidal Silver.

NEW YORK, March 26, 1906.

To the Editor:—The article on "The Pharmacopeia and the Physician," in THE JOURNAL, March 24, 1906, contains the following surprising passage:

"Credé some years ago introduced a soluble form of metallic silver, for which certain manufacturers make the fabulous claim that it is an efficient disinfectant of blood and tissue. So long as septic diseases resist all treatment, it seems strange that reputable manufacturers will make such obvious misstatements."

In the same issue (page 909) you print an abstract of a report by Prof. Solis-Cohen, recording striking results from colloidal silver in endocardites and associated sepses, bronchopneumonia with pronounced meningeal symptoms, etc. That the claim of efficacy for colloidal silver is by no means "fabulous" is shown by a literature of more than 250 publications, with contributions by such men as Profs. Roswell Park, Warren Coleman, G. T. Harrison, D. L. Edsall, H. N. Vineberg, Edward Speidel, A. Jacobi, Frank Allport, C. S. Bacon, N. S. Davis, F. Forchheimer and many others. That colloidal silver produces profound physiologic effects is shown by such researches as those of Bamberger, Beyer, Schade, Rodsewicz and Robin. The last-named writes in International Clinics, 1905, volume III, that the colloid metals exert a powerful catalytic action like that of the organic diastases and are destined to take a prominent place in functional therapeutics.

While colloidal silver is no such powerful bactericide as the salts of silver, it most assuredly does accomplish blood and tissue disinfection by an inhibitory effect on germ growth, by its electro-catalytic properties, and by its leucocytogenetic action, if it is not used too late.

In view of these facts, the assertion that our claims for colloidal silver are "fabulous" and "obvious misstatements," is unjustified.

SCHERING & GLATZ.

The Association Button.

NEW ORLEANS, April 26, 1906.

To the Editor:—I hope that you will again and again urge the advisability of every member wearing the button, for by this means the public will soon learn to distinguish us from the many irregulars who infest every large city and call themselves doctors. Besides, the constant sight of these buttons will give the wearers power and influence in the public eye.

T. S. DABNEY, M.D.

CINCINNATI, April 24, 1906.

To the Editor:—The letter of Dr. Fletcher Ingals in THE JOURNAL meets with my hearty approval. There certainly should be a spirit of fraternity among physicians both at home and abroad, and especially so among members of the American Medical Association. I am surprised that the button is not more worn at other times than at the annual sessions.

E. S. MCKEE, M.D.

What's the Difference?

CHICAGO, ILL., April 26, 1906.

To the Editor:—The following advertisement, which has appeared in various papers, was taken from *Life* for April 5, 1906, where it appeared along with advertisements of corsets, Scotch whisky and other such things:

WILL YOU TRY THE BATTLE CREEK LIFE FOR 30 DAYS?
WILL YOU EAT THE FOODS AND LIVE THE LIFE OUR EXPERTS RECOMMEND?

Do You Really Want to Be Perfectly Well?

Tell us, then, if you are ailing, or if in good health that you wish to remain so. Let us send you our book. It is very interesting. The life it recommends you can live in your own *home*. You ought to read about it. Nowhere else are so many specialists studying this one thing alone: how to get well and how to *stay* well. No organization anywhere has been so successful. None other is so near the truth. And the basis of all this is right food, right living, keeping the stomach right. All this we can explain in our book—explain clearly, logically, interestingly, so that you may *understand*. Isn't it worth the mere effort of writing us simply to know? Won't you ask for our book to-day? Address the Battle Creek Sanitarium Co., Ltd., Dept. A 191, Battle Creek, Mich.

Suppose you or I should insert in *Life:*

WILL YOU TRY MY TREATMENT FOR THIRTY DAYS?

Tell me if you are ailing or if (preposterous question)* you want to remain in good health.

Let me send you my book. The life it recommends you can live in your own home (by buying my things).

Nobody else is studying so thoroughly or has been so successful in solving the problems of how to get well and how to keep well. None other (than my earnest self) is so near the truth. (And doesn't this have the old familiar sound of the

* As the critics would say the parentheses are mine.—W. A. P.

letter-press that accompanies the picture of the gentleman in the orator's attitude in the advertisements we see in the daily papers?)

All this I explain in my little book, clearly, logically (and plausibly). Isn't it worth the effort of writing to know? (And isn't that like the gentleman with cures for this, that and the other who beseeches you to write him and wants to know if it isn't worth a postal card to get well?) Won't you write to-day (for if you put it off you are apt to forget it and I may be the loser, if you are not.) Address (so that I can keep track of my ads), Dept. X.

Suppose you or I perpetrated that sort of stuff on the community? What would be thought of us?

W. A. PUSEY.

Warning Against Fraudulent Insurance Agent.

SUMMERVILLE, S. C., April 27, 1906.

To the Editor:—If you will give publicity to the following you will do our profession a great service and aid in placing in the penitentiary one of the nerviest thieves in America. A man, six feet in height, with stubby, iron-gray moustache, large gray eyes with a decided outward and downward slant, rather prominent eyeballs, hair slightly curly, iron gray and rather thin over the forehead and on top of the head, weighing 260 pounds and about 60 years of age is traveling the country over, purporting to be an agent of the Columbian National Life Insurance Company. He has swindled a number of physicians in Charleston by the following scheme: He shows credentials as agent of the company and offers to appoint his intended victim a medical examiner and sell him stock of the company at a reduced price, representing that the stock is salable only to policy-holders and examining physicians, who can each purchase as many as four shares if they like, without being obliged to take a policy with the company. The unwary physician gives his check or $30 in cash, for which he receives a receipt agreeing to deliver stock of the American Investment Securities Company. The Columbian National Life Insurance Company repudiates him and asks for his arrest if seen again. He left Charleston, giving Asheville, N. C., as his destination.

A. H. HAYDEN.

Association News

THE BOSTON SESSION.

Railroad Rates—Limits of Tickets—Stop-over Privileges—Hotels—Other Announcements.

The last issue of THE JOURNAL was the Boston number, containing some twenty pages of pictures and descriptive matter of interest to those who will attend the fifty-seventh annual session of the American Medical Association at Boston, June 5-8, 1906. Some additional information is given below, and if any other announcements are received later they will appear in subsequent issues of THE JOURNAL.

Hotels.

The chairman of the Committee on Hotels, Dr. Charles Harrington, 8 The Fenway, Boston, calls attention again to the announcement of hotels which appeared in THE JOURNAL last week. It will be to the advantage of all who wish accommodations in Boston to write at once, giving particulars, so that reservations may be made for them. The committee announces that in addition to the hotels specified there are many others of excellent quality, as well as many boarding houses, where members will find pleasant accommodations. The committee will assign rooms in accordance with the wishes of those who write to them.

Loan Exhibit of Portraits of Ophthalmologists.

It has been decided to hold a loan exhibit of portraits of ophthalmologists in a hall adjacent to the amphitheater in which the Section on Ophthalmology is to meet. Members of the section, and others, are requested to co-operate in making this exhibition as large and representative as possible by forwarding by mail or express, to the Williams & Everett Company, 190 Boylston Street, Boston, any portraits (etchings, photographs, line engravings, paintings, etc.) of deceased ophthalmologists (especially Americans) that they may possess or can borrow for this purpose. The Williams & Everett Company will receive, unpack, care for and reship, without expense, any portrait so loaned. Credit will be given the lender, whose name should appear on or be attached to each portrait. When possible portraits should be forwarded without frames. From the pictures thus loaned it is expected to choose those that will best serve the purpose of the exhibit and to issue a catalogue to be distributed the first day of the session.

Pacific Coast August Return Limit Canceled.

The Transcontinental Passenger Association has withdrawn its proposed final return limit of August 31. The limit of all tickets will, therefore, be July 15.

Return Limit Extended.

As announced in THE JOURNAL last week, the final return limit of the Boston tickets, instead of June 30, will be July 15. Ordinarily the ticket will require the holder to leave Boston by June 18 after having had the ticket validated by the joint agent. To have the ticket extended it must be deposited with the agent not later than June 18, and it can be obtained just before departure.

Stop-over at New York.

Stop-over at New York may be obtained on the return trip on tickets reading via New York on these conditions:

1. The ticket must be validated by the joint agent at Boston.
2. The ticket must be deposited by the original purchaser in person with the joint agent at New York not later than one day after validation at Boston. (A fee of $1 is required.)
3. The passenger will call at the New York validating office for the ticket not more than two hours before the departure of the train out of New York (except that if trains leave after 6 p. m. and before 9 a. m. ticket will be delivered before 6 p. m.).

NOTE.—Ticket will not be good leaving New York later than the day following the date of leaving Boston unless stop-over certificate is secured. For example, one who leaves Boston on Friday, reaching New York Saturday morning, could stop off in New York until the evening of Saturday, but no longer without securing a stop-over certificate.

Those who wish to stop off at New York and whose tickets do not read via New York should consult the agents of their railroads or the railroad officials at Boston for arrangements for this privilege.

Validating Agencies.

The Boston validating agent is Mr. P. H. Gallaher, 63 Federal Street, corner of Franklin. Office hours, 8 a. m. to 6 p. m. daily up to July 15 inclusive, except Sunday, when office hours will be from 12 noon to 5 p. m.

The New York joint agent is Mr. W. F. Holwill, 182 Fifth avenue, New York. His office hours are 8 a. m. to 6 p. m. daily.

Rates and Dates of Sale.

The rate to Boston is one fare plus $1 for the round trip from territory east of the Mississippi River. Tickets will be on sale from May 31 or June 1 to June 9 in Central Passenger Association territory, but purchaser must not reach the gateways of the New England Passenger Association earlier than June 2 and must not arrive in Boston later than noon of June 12. Date of leaving Boston will not be earlier than June 2. (The return limit has been detailed above.)

Any One May Purchase Tickets.

Inquiries are received as to who may purchase tickets. These rates are open to any one, whether a physician or not.

An Ocean Trip to Boston.

Special excursion tickets are offered on boats of the Merchants' and Miners' Transportation Company, of Baltimore, between Boston, New York, Baltimore, Norfolk, Old Point Comfort, etc. A special round-trip from Baltimore to Boston is offered, going by way of Albany, Hudson River day line to New York and thence by rail to Baltimore at a rate of $24.55.

For further information address Mr. W. P. Turner, general passenger agent at Baltimore; also see below under the Baltimore & Ohio Railway.

Trains and Routes.

THE JOURNAL last week gave in brief the advantages of several special trains to Boston. The New York Central lines run a special train, with the finest possible equipment, from Chicago at 10:30 a. m., Sunday, June 3, to arrive at Boston at 2 p. m., Monday, June 4. Particulars of this train may be secured from Mr. L. F. Vosburgh, general western passenger agent, room 529 La Salle Street Station, Chicago. The committee on transportation of Chicago Medical Society has selected this train and this insures an enjoyable party. On tickets reading via this line stop-over of ten days at New York may be secured on the return trip, and these tickets will be accepted on the Hudson River day line steamers between Albany and New York in either or both directions, also on the steamers of the Cleveland and Buffalo Transit Company between Buffalo and Cleveland on return trip.

The Canadian Pacific offers a beautiful trip through the Thousand Islands, Canada, Quebec, the White and the Green Mountains. Further particulars may be had from Mr. A. C. Shaw, general passenger agent Canadian Pacific Railroad, Chicago.

The Wabash Railroad special train leaves Chicago, Sunday, June 3, at 10:30 p. m., and will reach Boston, Tuesday, June 5, at 7 a. m. For particulars address Mr. F. H. Tristram, assistant general passenger agent, 97 Adams street, Chicago.

The Baltimore & Ohio Railroad announces its regular trains through Philadelphia, Washington and New York, with stop-over privileges. Arrangements are made for a steamboat ride from Baltimore to Boston on the Merchants' and Miners' steamers, mentioned above, for $20 from Chicago to Boston and return. A neat booklet, which gives full details as to rates, routes, etc., has been issued by the Baltimore & Ohio Railroad, which can be had on application to W. W. Picking, district passenger agent, 244 Clark Street, Chicago.

Our wideawake Missouri Valley doctors expect to have a special train in two sections to run through the beautiful Grand Trunk Railway scenery, including the St. Lawrence River by boat. Through cars for this train will leave Missouri River points on the evening of May 31. The special trains will be formed in Chicago, leaving June 1 at 3 p. m. The arrival in Boston will be June 4. Further particulars of these trains may be had from Mr. George W. Vaux, assistant general passenger agent, 135 Adams Street, Chicago, or Dr. Charles Wood Fassett, St. Joseph. The latter emphasizes the advantage of this train in its early arrival in Boston.

The Commercial Exhibit at Boston.

The Committee of Arrangements expects to have a Commercial Exhibit at the Boston Session which will be one of the features of the gathering. Special pains have been taken to have this an assemblage of exhibits not only by firms which have sought the privilege, but by firms representing all the lines of manufacture and sale in which physicians would be at all interested. Quantity and mere display are to be disregarded and quality and representative character have been secured. According to the announcement of the committee in the *Boston Transcript*, the medical book display is to have a historical side as in addition to the usual elaborate display of books, a great collection of pictures, rare books, historical documents, etc., will be exhibited. In the drug line, manufacturing chemists will not content themselves with showing the preparations alone, but will exhibit methods of manufacture and use. The surgical instrument department will, it is said, outdo in interest all of its predecessors.

"Another extremely important exhibit, important especially to physicians, will be the automobile show, and it is expected that a special exhibit of physicians' carriages will stand opposite by way of comparison."

"Those having the arrangements of the exhibit in charge are making every effort to have it as practical, suggestive, useful and advantageous as possible to all concerned. A determined effort also is being made to attract only responsible firms."

NEW MEMBERS.

List of new members of the American Medical Association for the month of April, 1906:

ALABAMA.

Ballard, I. C., Gadsden.
Battle, J. K., Eufaula.
Beard, J. S., Troy.
Bowman, J. L., Union Springs.
Copeland, B. G., Birmingham.
Craddock, F. H., Sylacauga.
Fitts, Alston, Tuscaloosa.
Ison, H. L., Gadsden.
Killian, A. D., Holt.
McGeehee, H. T., Morris.
Moore, L. H., Orrville.
Morland, H. C. Birmingham.
Purnell, J. K., Reform.
Quin, W. E., Ft. Payne.
Robinson, E. M., Birmingham.
Wilkinson, J. E., Jr., Prattville.

ARIZONA.

Graham, R. W., Prescott.
McDonnell, J. K., Crown King.

ARKANSAS.

Cowger, Robert, Danville.
Fletcher, B. A., Augusta.
Greene, L. O., Pea Ridge.
Logan, B. C., Morrilton.
Reiser, G. F., Thornton.
Robinson, F. C., Henzen.
White, R. L., Little Rock.

CALIFORNIA.

Austin, S. A., Los Angeles.
Carlson, C. H., San Francisco.
Cornish, E. J., La Moine.
Culver, J. T., Oak Park.
Dickson, C. S., Riverside.
Farnum, C. E., San Francisco.
Frasse, I. N., San José.
Jackson, W. J., San Francisco.
Johnson, A. W., San Francisco.
Johnson, W. S., San Francisco.
Kiger, W. H., Ocean Park.
Lorini, R., Coronado.
Newton, J. C., San Francisco.
Poage, C. A., Colusa.
Potts, R. D., Oxnard.
Putnam, H. A., Inglewood.
Royal, A. B., Pasadena.
Saylor, B. F., French Gulch.
Whitman, C. H., San Francisco.

COLORADO.

Barrett, G. W., Greeley.
Buchanan, F. G., Denver.
Dowling, J. T., Sopris.
Gilmore, G. B., Colorado City.
Hutchinson, A. F., Durango.
Jones, N. W., Kersey.
Leisenring, P. S., San Diego.
McKinnie, L. H., Colorado Springs.
Nordlander, A. G. E., Leadville.
Ray, J. C. B., Denver.
Reed, W. W., La Junta
Wood, Lucy M., Boulder.

CONNECTICUT.

Driscoll, D. M., Bridgeport.
Downs, F. B., Bridgeport.
Sanford, W. H., New Haven.
Smith, Charles, Riverside.

DISTRICT OF COLUMBIA.

Copeland, E. P., Washington.
Gleeson, J. K. P., Washington.
Hull, T. Y., Washington.
Jones, T. G., Washington.
Lovering, P. A., Washington.
MacNamee, A. M., Washington.
St. Clair, F. A., Washington.
Tubman, J. R., Washington.

FLORIDA.

Young, C. T., Plant City.

GEORGIA.

Benson, C. F., Atlanta.
Downey, J. H., Gainesville.
Greene, A. B., Cartersville.
Hancock, T. H., Atlanta.
Jarnagin, W. C., Atlanta.
Overstreet, G. M., Sylvania.
Rudolph, H. L., Gainesville.
Tanner, J. B., Lumpkin.
Ware, R. M., Waycross.
White, G. R., Savannah.
Wood, W. E., Dalton.

IDAHO.

Clarke, Jessie K., Weiser.
Roy, D. C., Malad.

ILLINOIS.

Bigelow, F. E., Chicago.
Capel, A. B., Shawneetown.
Clark, J. A., Chicago.
Dawson, J. A., Chicago.
De Mendoza, A. H., Chicago.
Diamond, I. B., Chicago.
Dornbusch, H. W., Chicago.
Fehring, W. B., Chicago.
Fleming, J. L., Chicago.
Giles, W. N., Wataga.
Harms, Henry, Chicago.
Higgins, S. G., Chicago.
Holmes, A. G. H., Chicago.
Laftry, T. D., Chicago.
Learned, Clare S., Chicago.
Llerle, G. A., Quincy.
MacDonald, J. W., Aurora.
Malbridge, L. P., Decatur.
Maschek, F. J., Chicago.
McGann, M. E., Joliet.
Nelson, Bernard, Chicago.
Pattison, H. A., Venid.
Reis, Henry, Jr., Belleville.
Schussler, H. K., Chicago.
Sherman, Paul, Shawneetown.
Simpson, J., Morrisonville.
Smith, Carroll, East St. Louis.
Strauch, August, Chicago.
Tuite, J. E., Rockford.
Weifeld, Jos., Chicago.
Welton, C. B., Peoria.
Willingham, R.H., Elizabethtown.
Worthley, H. S., Joliet.

INDIANA.

Bolling, L. A., Attica.
De Vaney, M. O., Indianapolis.
Fuller, W. H., No. Vernon.
Gibbons, G. L., Huron.
Hutchings, B. M., Crawfordsville.
Ivey, D. R., La Crosse.
Jones, J. G., Vincennes.
Kelly, J. C., Mitchell.
Kennedy, W. H., Shelbyville.
Magenheimer, V. A., Waverly.
Mendenhall, F. F., Elwood.
Miller, H. M., So. Bend.
Newhouse, O. A., Hillsdale.
Newlin, S. C., Anderson.
Spencer, W. A., Wolcott.
Treon, J. F., Aurora.
White, W. C., Indianapolis.

INDIAN TERRITORY.

Bartley, J. P., Comanche.
Clinton, F. S., Tulsa.
De Groat, C. E., Muskogee.
Harris, A. J., So. McAlester.
Heitzman, C. W., Muskogee.
Howell, H. A., Holdenville.
Nichols, J. T., Muskogee.
Oldham, I. B., Muskogee.
Skeen, M. P., Wapamucka.
Taylor, J. C., Chelsea.
Tilly, W. T., Pryor Creek.

IOWA.

Abbott, C. A., Oskaloosa.
Blowers, W. M., Bassett.
Boucher, F. H., Marshalltown.
Bullock, W. E., Lake Park.
Egdahl, Anfin, Iowa City.
Edgerly, E. T., Ottumwa.
Fraser, L. E., Macedonia.
Frear, E. D., Sloan.
Grimwood, W. H., Ft. Madison.
Leipziger, H. A., Burlington.
Martin, W. J., Red Oak.
Molloy, Edward, Fairbank.
Moon, A. C., Williamsburg.
Norton, W. S., Muscatine.
O'Doherty, D., Charlotte.
Sherbon, F. B., Colfax.
Starbuck, T. D., Davenport.
Wilson, O. F., Lacey.

KANSAS.

Buck, C. B., Abilene.
Biddle, G. A., Emporia.
Burris, T. E., Allen.
Cochran, Athol, Iuka.
Davies, H. E., Emporia.
Ernest, F. J., Topeka.
Hodgson, J. E., Long Island.
Hoke, H. E., So. Haven.
King, L. R., Junction City.
Lathrop, W. C., Norton.
Long, T. C., Munden.
Longenecker, C. W., Kingman.
Longenecker, D. F., Emporia.
McCalman, I. J., Piper.
Metcalf, J. E., Salina.
Milner, J. O., Kansas City.
Silkman, W. D., Manhattan.
Sterrett, W. P., Kansas City.
Spessard, M. R., Glen Elder.
Storrs, W. D., Topeka.

Wooden, G. M., Bluff City.
Yates, W. S., Junction City.

KENTUCKY.

Acton, J. M., Lancaster.
Caldwell, J. A., Peach Grove.
Clark, F. S., Louisville.
Digby, J. M., Newport.
Dowden, A. P., Eminence.
Frazer, T. A., Marion.
Giannini, B. E., Central City.
Koger, E. McC., Albany.
Marable, J. H., Lafayette.
McCreary, J. C., Cave City.
Moore, W. B., Cynthiana.
Owen, F. W., Irvins.
Robertson, L. L., Middlesboro.
Shelley, D. C. L., Albany.
Turner, J. W., Jeffersontown.
Wilson, J. W., Lexington.

LOUISIANA.

Aguin, John, New Orleans.
Couvillon, S. J., Plancheville.
Groetsch, C. W., New Orleans.
Kaffie, L., Jackson.
Knighton, J. E., Homer.
Lavigne, B., New Orleans.
O'Reilly, W. T., New Orleans.
Rupp, J. A., New Orleans.
St. Dizier, J. O., Walls.
Salomon, L. F., New Orleans.
Simon, S. K., New Orleans.
Troescher, W. G., New Orleans.

MAINE.

Cook, E. C., York.
Hollard, R. A., Calais.
Jordan, F. H., So. Portland.
Mitchell, Alfred, Brunswick.
Smith, A. L., Machias.
Toble, W. E., Portland.
Webber, S. E., Calais.
Williams, C. E., Houlton.

MARYLAND.

Bubert, C. H., Baltimore.
Garrison, J. S., Baltimore.
Hall, W. F., Crisfield.
Lankford, H. M., Princess Anne.
Purdum, H. D., Baltimore.

MASSACHUSETTS.

Abbott, S. W., Lawrence.
Adams, J. D., Boston.
Adams, John, Boston.
Arms, B. L., Boston.
Ayer, S. H., Boston.
Barney, J. D., Boston.
Baketel, R. V., Methuen.
Breck, Samuel, Boston.
Brownrigg, J. S., Roxbury.
Brown, H. A., Whitinsville.
Burns, F. S., Boston.
Brown, E. W., Northampton.
Bulkeley, F. S., Ayer.
Carleton, C. G., Lawrence.
Carolin, W. T., Lowell.
Carroll, J. J., Holyoke.
Conner, H. L., Haverhill.
Chandler, C. L., Fitchburg.
Drummey, N. D., Boston.
Deering, G. E., Worcester.
Donahue, W. F., Cambridge.
Donnelly, J. B., Gardner.
Dixon, R. B., Boston.
Everett, O. H., Worcester.
Frame, Joseph, Rockland.
Fitz, G. W., Boston.
Fountain, O. R., Boston.
Fuller, D. H., Jamaica Plain.
Gardner, A. R., Lowell.
Gavin, J. H., Boston.
Gay, H. S., Boston.
Grant, W. V., Lawrence.
Greene, R. A., Lowell.
Gould, A. H., Boston.
Hall, W. D., Medford.
Hammond, W. J., Boston.
Hersey, F. C., Boston.
Howland, J. B., Gardner.
Hubbard, F. A., Taunton.
Hunt, E. L., Worcester.
Hutchinson, C. P., Aubindale.
Jillson, F. C., Boston.
Jones, F. E., Quincy.
Kellogg, F. L., Roxbury.
Knight, C. E., Rockland.
Konikow, M. J., Boston.
Lockhart, J. S., Cambridge.
Meehan, P. J., Lowell.
Merrill, A. P., Pittsfield.
Mignault, Rodrique, Lowell.
Moore, G. C., Boston.
Mosher, H. P., Boston.
Newton, W. C., Revere.
Paine, A. K., Boston.
Parks, S. H., Reading.
Powers, H. H., Brookline.
Prince, Morton, Boston.
Raymond, L. H., Somerville.
Reardon, D. B., Quincy.
Reilly, J. A., Boston.
Rice, R. A., Fitchburg.
Rogers, O. F., Boston.
Sargent, W. L., Quincy.
Sherburne, A. E., Boston.
Sherman, Mary H., Brookfield.
Sleeper, W. J., Westford.
Smith, H. F. M., Orange.
Spooner, J. W., Hingham.
Stack, C. F., Hyde Park.
Stanton, Joseph, Newton.
Strong, L. W., Boston.
Sylvester, C. P., Boston.
Tenney, W. N., Canton.
Thurlow, J. H., Boston.
Tuttle, G. T., Waverly.
Wheeler, Leonard, Worcester.
Wilson, L. T., Boston.
Withington, C. F., Boston.
Wolbach, C. B., Boston.

MICHIGAN.

Berge, F. E., Grand Rapids.
Burgess, J. M., Detroit.
Campbell, Christopher, Detroit.
Dunning, G. M., Lansing.
Dutton, C. A., Detroit.
Henry, T. J., Detroit.
Hutchinson, W. G., Detroit.
Lindgren, Ilmari, Ishpeming.
Lounee, S. L., Vandalia.
McCosh, E. A., Detroit.
McEachren, A. D., Detroit.
Moody, P. E., Detroit.
Roberts, A. J., Jackson.
Seybold, G. A., Jackson.
Starring, Anna M. F., Detroit.
Tupper, F. L., Flint.
Windham, P. S., Saginaw.

MINNESOTA.

Blake, James, Hopkins.
Cole, H. B., Franklin.
Davison, P. C., Clara City.
Donovan, J. J., Eden Valley.
Dunn, J. T., Wykoff.
Deziel, Godfrey, Minneapolis.
Greene, F. W., Waterville.
Griswold, F. E., Hoffman.
Helland, J. W., Maynard.
Kanne, C. W., Arlington.
Kistler, C. M., Minneapolis.
Landeen, F. G., Stillwater.
Maschger, A. P., Rochester.
Moore, L. A., Tower.
Nass, H. A., Mabel.
Read, C. A., Minneapolis.
Richards, W. G., Sanborn.
Ridgway, A. M., Annandale.
Rogers, C. E., Montevideo.
Stabo, T., Spring Grove.
Swenson, Chas., Braham.
Wilkinson, J. C., Red Lake Falls.
Williams, R. V., Rushford.

MISSISSIPPI.

Bell, M. H., Vicksburg.
Lewis, H. L., Street.
Montroy, C. L., Coahoma.

MISSOURI.

Albrecht, F. H., St. Louis.
Bartlett, J. R., Springfield.
Beall, J. W., Malden.
Beckham, G. S., St. Louis.
Bell, W. E., Osceola.
Benton, A. W., Neosho.
Birchett, J. G., Cardwell.
Chapman, H. N., St. Louis.
Carver, H. N., Chillicothe.
Cherrington, J. F., Chillicothe.
Conard, J. W., Albany.
Drake, G. S., Jr., St. Louis.
Engelbach, Wm., St. Louis.
Ewing, A. E., St. Louis.
Fowlston, John, Kansas City.
Gorin, M. G., St. Louis.
Guhman, C. N., St. Louis.
Harrison, R. T., Dixon.
Henckler, E. H., St. Louis.
Hill, H. S., Springfield.
Hulett, R. F., Rich Hill.
James, R. M., Joplin.
Lane, Hallie F., Kansas City.
Miller, W. J., St. Louis.
Munsch, A. P., St. Louis.
Neff, F. C., Kansas City.
Owens, R. J., Mill Spring.
Riesmeyer, L. T., St. Louis.
Salter, J. C., St. Louis.
Singer, J. J., St. Louis.
Tanner, W. C., Montrose.
Wyche, Charles, St. Louis.

MONTANA.

Strain, Earle, Great Falls.

NEBRASKA.

Bancroft, W. M., Lexington.
Beatty, J. R., Butte.
Blanchard, G. L., Craig.
Britell, O. A., St. Edward.
Cepelka, J. A. N., Crete.
Clough, F. E., Alliance.
Cone, E. E., Oxford.
Gooden, C. W., Edison.
Knode, A. R., Omaha.
Lynch, Albert, Nehawka.
Morrow, H. N., Fremont.
Pruner, W. H., Kennard.
Stowitts, A. D., Sidney.

NEW HAMPSHIRE.

Congdon, C. E., Nashau.
Hyland, J. B., Keene.
Petit, A. W., Nashua.
Smith, H. L., Nashua.
Wilder, R. E., Whitefield.

NEW JERSEY.

Abbott, H. D., Bayonne.
Cassady, J. B., Burlington.
Condon, W. J., New Brunswick.
Dingelstedt, R. H., Hoboken.
Fayerman, W. B., Atlantic City.
Fogg, E. S., Bridgeton.
Fritts, J. T., Plainfield.
Hagney, F. W., Newark.
Ingling, H. W., Freehold.
Lockwood, F. W., East Orange.
Potter, P. A., East Orange.
Rogers, E. B., Collingswood.
Schlemm, Richard, Town of Union.
Sutphen, C. E., Newark.
Teeter, C. E., Newark.
Titus, G. E., Hightstown.
Towle, H. A., Newark.
Treganown, Ambrose, So. Amboy.
Vreeland, G. W., Paterson.
Wolff, F. C., Hoboken.

NEW MEXICO.

Mayes, C. M., Roswell.
Shuler, J. J., Raton.
Whitehill, F. P., Silver City.

NEW YORK.

Adams, Edward, New York City.
Applebee, Ira, Albany.
Ashley, D. D., New York City.
Archambault, J. L., New York City.
Auersperg, Francis, New York City.
Barney, B. A., Hornellsville.
Beasley, C. D., Brooklyn.
Beck, A. W., New York City.
Becker, J. P., Brooklyn.
Bleak, J. F., New York City.
Boettiger, Carl, L. I. City.
Bongartz, Joseph, Kingston.
Bonner, Adolph, New York City.
Boswell, C. O., Rochester.
Braislin, W. C., Brooklyn.
Brecht, F. E. L., Buffalo.
Bristow, A. T., Brooklyn.
Brown, C. W. M., Elmira.
Buckmaster, C. W., Yonkers.
Burke, J. A., New York City.
Butler, W. E., Brooklyn.
Carpenter, G. S., Waverly.
Campbell, A. M., Mt. Vernon.
Card, J. H., Poughkeepsie.
Carpenter, T. B., Buffalo.
Cassebeer, H. A., New York City.
Chandler, George, Kingston.
Clark, Pierce, New York City.
Clark, I. T., Rochester.
Coakley, C. G., New York City.
Conner, L. A., New York City.
Cornwell, H. C. de V., New York City.
Cortright, C. B., Brooklyn.
Cottis, G. W., Batavia.
Cox, H. M., New York City.
Crook, J. K., New York City.
Darrow, C. E., Rochester.
Davis, A. F., Jr., New York City.
Dawson, Edward, Brooklyn.
Dobson, W. G., Poughkeepsie.
Douglass, A. O., Little Falls.
Durkee, J. W., Sea Cliff.
Dusseldorf, L. M., Brooklyn.
Eccles, R. G., Brooklyn.
Edgerly, J. W., New York City.
Edgar, J. C., New York City.
Faust, Louis, Schenectady.
Feinberg, I. L., New York City.
Garbutt, Frank, Mechanicsville.
Gleason, W. S., Newburgh.
Giles, J. E., New York City.
Graeser, H. R. A., New York City.
Greenstein, Harry, New York City.
Guttman, John, New York City.
Gutman, Jacob, New York City.
Harris, T. J., New York City.
Hibbs, R. A., New York City.
Hinman, E. E., Albany.
Howley, B. M., New York City.
Hubbard, W. S., Brooklyn.
Illoway, H., New York City.
Jackson, G. T., New York City.
Jacobsohn, Wm., New York City.
Jacobson, Nathan, Syracuse.
Jordan, C. H. R., New York City.
Joslin, J. W., Johnstown.
Keenan, Michael, Troy.
Kerr, A. T., Ithaca.
Kingsbury, Jerome, New York City.
Klotz, H. G., New York City.
Knickerbocker, H. J., Geneva.
Koplik, Henry, New York City.
Krauss, W. C., Buffalo.
MacGruer, H. A., Syracuse.
Mambert, A. H., Kingston.
Mann, F. J., Poughkeepsie.
Mathewson, D. P., Bath.
May, C. H., New York City.
McCready, J. W., New York City.
McCreery, F. R., New York City.
McCulloch, W. C., Gloversville.
McIntyre, W. H., New York City.
McMannis, W. T., New York City.
McMichael, G. H., Buffalo.
Messerschmitt, Frederick, Rochester.
Meara, F. S., New York City.
Meierhof, E. L., New York City.
Mendelson, W., New York City.
Miller, Edward, New York City.
Miller, J. A., New York City.
Miller, A. F., Batavia.
Morton, W. J., New York City.
Nieder, C. F., Geneva.
Nielsen, J. C. E., Brooklyn.
Nisselson, Max, New York City.
Palmer, F. A., Mechanicsville.
Pease, H. D., Albany.
Peet, E. W., New York City.
Piffard, H. G., New York City.
Plumley, W. F., Rochester.
Potter, N. B., New York City.
Poucher, J. W., Poughkeepsie.
Prentice, A. C., New York City.
Putnam, C. R. L., New York City.
Power, J. F., New York City.
Radcliff, Sue, Yonkers.
Reque, P. A., Brooklyn.
Rogers, D. L., Bolton Landing.
Rogers, John, New York City.
Roemer, W. B., Utica.
Rosapepe, G., New York City.
Ryan, T. A., Albany.
Sadlier, J. E., Poughkeepsie.
Scanidt, F., New York City.
Scott, Peter, Brooklyn.
Skinner, S. W., Le Roy.
Smith, E. E., New York City.
Sobel, Jacob, New York City.
Southworth, C. W., Forestville.
Spengler, J. A., Geneva.
Spilsbury, E. A., Yonkers.
Spofford, H. M., Batavia.
Starr, M. A., New York City.
Stivers, M. A., Middletown.
Stover, Chas., Amsterdam.
Taylor, A. S., New York City.
Thomson, E. S., New York City.
Tilton, B. T., New York City.
Tompkins, B. V., New York City.
Tozier, L. L., Batavia.
Tucker, J. T., Waverly.
Van Doren, Wm., Mechanicsville.
Vincent, W. G., New York City.
von Tilling, J. H. M. A., Poughkeepsie.
Wachenheim, F. L., New York
Wakelee, E. H., Big Flats.
Waller, O. M., Brooklyn.
Waldo, Ralph, New York City.
Warbasse, J. P., New York City.
Westbrook, R. W., Brooklyn.
Westlake, C. L., Le Roy.
Whitehouse, H. H., New York City.
Wilcox, R. W., New York City.
Williams, G. H., Fishkill-on-Hudson.
Woglom, W. H., Brooklyn City.
Wolff, W. D., Rochester.
Wynkoop, H. J., Bath.
Young, J. Van D., New York City.
Ziegel, H. F. L., New York City.

NORTH CAROLINA.

Atkins, G. J., China Grove.
Childs, J. A., Hickory.
Hooper, D. D., Sylva.
McAnally, C. B., Madison.
Moore, W. J., Asheboro.
Orr, C. C., Asheville.
Pfohl, S. F., Salem.
Shaffner, J. F., Jr., Winston-Salem.

NORTH DAKOTA.

Bell, David, Edinburg.
Ribble, G. B., La Moure.
Miller, G. H., Stanley.
Mowatt, W. B., Walhalla.

OHIO.

Aplin, C. F., Logan.
Baker, Chas., Palestine.
Bill, A. H., Cleveland.
Bird, F. E., Lore City.
Buckingham, J. M., Springfield.
Civins A. I., Cleveland.
Clemson, G. W., Thornsville.
Cook, J. J., Cincinnati.
Crawford, L. A., Alliance.
Cruikshank, Alex., Salem.
Danford, E. F., Glouster.
Davis, G. W., Lockland.
Dew, F. R., Summerfield.
Ely, C. W., Cheshire.
Gillespie, Wm., Cincinnati.
Griess, W. R., Cincinnati.
Hanley, J. M., Chillicothe.
Harlan, Earl, Cincinnati.
Hartford, P. C., E. Palestine.
Humphreys, Frank, Mt. Victory.
Humphrey, Lee, Malta.
Johnston, C. E., E. Palestine.
Jordan, J. D., Portsmouth.
Judkins, W. L., Barnesville.
Kackley, J. A., Pleasant City.
Keller, B. T., Streetsboro.
Kline, O. E., Columbus.
McCowan, J. A., Dexter City.
May, Morris, Cincinnati.
MacGregor, Chas., Dayton.
McDade, W. G., E. Liverpool.
McNeill, R. C., Belle Center.
Murphy, D. M., Bethesda.
Mikolanda, Otto, Cleveland.
Okey, C. T., Columbus.
Phelps, E. M., New Bremen.
Riewel, H. V., Cleveland.
Rosamond, W. B., Milnersville.
Schroeder, J. H., Cincinnati.
Shepard, G. W., Ravenna.
Stamm, John, Jacksonville.
Steward, G. W., Woodsfield.
Stoneburner, W. F., Moxahala.
Smith, J. W., Cleveland.
Stuart, C. C., Cleveland.
Teter, J. S., Harriettsville.
Tressel, J. K., Alliance.
Twitchell, H. E., Hamilton.
Vorhies, E. E., Cambridge.

OKLAHOMA.

Blickensderfer, C. H., Tecumseh.
Campbell, A. X., Lawton.
Cotton, L. W., Enid.
Mahr, J. C., Shawnee.
Moessner, T. C., Mountain Park.
Mitchell, Esther, Shawnee.
Pendergraft, W. C., Hollis.
Proffitt, J. H., Oklahoma City.
Rowland, T. D., Shawnee.
Skinner, H. S., Shawnee.
Wagner, H. A., Shawnee.
Weller, R. E., Pawnee.

OREGON.

Loeb, Sandford, Portland.

PENNSYLVANIA.

Barach, J. H., Pittsburg.
Blair, J. D., Franklin.
Christie, M. H., Corry.
Dana, L. W., Marienville.
Day, E. W., Pittsburg.
Dennison, L. B., Sayre.
Guthrie, Donald, Wilkesbarre.
Haight, W. D., Johnstown.
Harvey, O. F., Wilkesbarre.
Heller, E. A., Philadelphia.
Hemminger, R. J., Meversdale.
Hutchinson, J. P., Philadelphia.
Murray, A. H., Sayre.
Rothrock, H. A., West Chester.
Scholl, B. F., Philadelphia.
Sheetz, J. L., New Oxford.
Sickler, P. C., Wilkesbarre.
Snodgrass, D. G., Meadville.
Stock, G. A., Danville.
Streckler, H. A., Philadelphia.
Walker, J. K., Philadelphia.
Widder, G. H., Harrisburg.
Woodburn, C. M., Towanda.

RHODE ISLAND.

Allen, E. S., Providence.
Canfield, W. C., Bristol.
Capwell, R. P., Providence.
Duckworth, Milton, Carolina.
Gleason, W. F., Providence.
Henry, J. E. F., Providence.
Legris, M. J. E., Arctic.
Matteson, G. A., Providence.
Milan, M. B., Providence.
Murphy, T. H., Pawtucket.
Ramsay, G. D., Newport.
Sprague, J. L., Providence.

SOUTH CAROLINA.

Peele, J. H., Cartersville.
Wingard, J. J., Lexington.

SOUTH DAKOTA.

Blezek, F. M., Tabor.
Faust, R. C., Salem.
Grove, E. H., Hetland.
Hodges, R. R., Lead.
Van Buren, A., Lead.

TENNESSEE.

Arnold, W. F., Nashville.
Barrett, D. N., Chattanooga.
Cunningham, J. M., Shelbyville.
Ensor, L. D. J., Cookeville.
Gresham, J. W., Jackson.
Harrington, R. A., Nashville.
McCallum, J. A., Tariffville.
Parker, J. R., Gallatin.
Slayden, W. W., Waverly.
Smith, R. E. L., Chattanooga.
Stapp, F. B., Chattanooga.
Steele, J. B., Chattanooga.
Waite, Netta M., Chattanooga.

TEXAS.

Alexander, R. J., Waco.
Allen, J. H., Justin.
Atkinson, D. T., Hillsboro.
Barnett, T. L., Midlothian.
Beaumont, G. B., Coleman.
Brown, H. E., Goldthwaite.
Burton, J. Q., Lockney.
Brockman, J. O., Breckenridge.
Cheatham, T. H., Italy.
Collins, W. B., Lovelady.
Conrad, J. M., Mexia.
Cravens, M. H., Arlington.
Creagan, M. V., Ft. Worth.
Cruse, J. B., Woodville.
Daniels, J. G., Gilmer.
Davis, T. P., Terrell.
Decherd, H. R., Dallas.
Doolittle, H. M., Dallas.
Dunlap, R. W., Ft. Worth.
Evans, G. M., Denton.
Fuller, F. A., Jacksonville.
Graves, R. W., Dallas.
Ghent, H. C., Belton.
Grigsby, C. M., Kaufman.
Hennen, J. C., Lone Oak.
Hines, B. M., Uvalde.
Howard, A. P., Ashland.
Johnson, J. F., Rusk.
Joyce, J. H., Buffalo.
Kenner, E. B., Galveston.
Keith, Uel, Stephenville.
Kirby, H. S., Silsbee.
Larkin, Percy, Athens.
Lockey, R. P., Nacogdoches.
Litten, Frank, Austin.
Longmire, R. B., Jacksonville.
McCamly, W. A., Wharton.
McReynolds, A. D., Stamford.
Moody, M. L., Greenville.
Morgan, J. B., Hondo.
Nall, W. R., Crawford.
Nelson, A. A., Nacogdoches.
Newhaus, F. H., Houston.
Nicholson, R. E., Brenham.
Northcutt, W. D., Longview.
Oates, T. F., Mexia.
Oxford, L. G., Stephenville.
Paine, W. H., Egan.
Phillips, B. A., Osage.
Pickett, N. J., Milford.
Rice, J. C., Sanger.
Richards, M. B., Ashland.
Rochelle, R. E. L., Buffalo Springs.
Rogers, Chas., Rosewood.
Selman, T. B., Silsbee.
Shelton, S. E., Waco.
Short, J. L., Houston.
Simpson, Friench, Galveston.
Smith, N. J., Sinclair.
Spring, J. V., San Antonio.
Stansberry, L. D., Longview.
Sterzing, H. F., Austin.
Tibbs, R. L., Itasca.
Tucker, F. R., Nacogdoches.
Turner, L. Y., Daingerfield.
West, W. B., Ft. Worth.
Wilkes, F. B., Abbott.

UTAH.

Middleton, G. W., Cedar.

VERMONT.

Bugbee, Marion L., White River Junction.

VIRGINIA.

Edwards, A. J., Bristol.
Gay, G. W., Jr., Richmond.
Harris, J. E., Berryville.
Rogers, W. R., Bristol.
Ross, George, Richmond.
Smith, J. W. R., Cismont.

WASHINGTON.

Clark, I. S., Sprague.
Booth, W. G., Seattle.
Howe, S. S., Lyden.

WEST VIRGINIA.

Shuttleworth, B. F., Clarksburg.

WISCONSIN.

Blair, J. C., Hazel Green.
Gates, A. J., Tigerton.
Goetsch, H. F., Abbotsford.
Gordon, J. B., Shawano.
Gotham, L. E., Sawyer.
Green, W. A., Wausau.
Greenberg, Harry, Milwaukee.
Masterson, J. A., Watertown.
Miller, H. C., Whitewater.
Noyes, G. K., Milwaukee.
Overbaugh, J. H., Hartland.
Pierce, E. D., Arcadia.
Picken, S. L., Wilson.
Pflueger, J. H., Fairchild.
Schmitz, W. C., St. Nazianz.
Seelye, N. L., Lake Geneva.
Starr, F. W., Stanley.

Marriages

JOHN E. BELL, M.D., to Miss Annie C. Warfield, both of Casky, Ky., April 28.

WILLIAM J. DOYLE, M.D., to Miss Marguerite Brady, both of St. Louis, April 30.

GEORGE L. FAUCETT, M.D., to Miss Joe Mae Barrett, both of Gadsden, Ala., April 25.

J. S. MALLOY, M.D., Shinnston, W. Va., to Miss Rhoda Lowe of Clarksburg, W. Va., April 25.

WILLIAM J. HIGGINS, M.D., to Miss Eleanor Cecelia Harrigan, both of Sayre, Pa., April 17.

HENRY A. CALKINS, M.D., Leadville, Colo., to Miss May F. Whitmore of Boulder, Colo., April 28.

ARTHUR RICHMOND CRANDELL, M.D., to Miss Gertrude Scovil Luce, both of Taunton, Mass., April 25.

CHARLES DENBEIGH MARCHANT, M.D., Harmony, Va., to Miss Katherine Pyles, at Baltimore, April 30.

ANDREW V. JOVA, M.D., to Miss Ethel Odell, both of Newburgh, N. Y., in New York City, April 25.

N. ATWOOD HANING, M.D., to Miss Josephine Marie Waterhouse, both of Wheeling, W. Va., April 26.

ARCHIE B. RINEHART, M.D., Cameron, W. Va., to Miss Willa L. Chenoweth, of Grafton, W. Va., April 28.

HARRY J. YORK, M.D., Warriorsmark, W. Va., to Miss Frances Hutchinson of Washington, D. C., April 25.

Deaths

Arthur Burley Hosmer, M.D. Chicago Medical College, 1876; grandson of Dr. Isaac Harmon, who was the surgeon on duty at old Fort Dearborn; a member of the American Medical Association, American Orthopedic Association, Association of Military Surgeons of the United States, Illinois Association of Military Surgeons; ex-president, Chicago Orthopedic Society; professor of orthopedic surgery in the Chicago Policlinic; orthopedic surgeon to St. Luke's Hospital; one of the most prominent and well-known orthopedic surgeons of Chicago, who devised several valuable forms of orthopedic appliances, notably the flat-foot plate which is known by his name; formerly captain and assistant surgeon of the First Infantry, Ill. N. G., died at his home in Chicago, May 5, from pneumonia, after an illness of eight days, aged 62.

John A. Ritchey, M.D. Jefferson Medical College, Philadelphia, 1871; a member of the American Medical Association, the Medical Society of the State of Pennsylvania, the Venango County Medical Society and of the International Medical Congres in 1890; a veteran of the Civil War; surgeon of several of the railways centering in Oil City, Pa.; a member of the Oil City school board for 15 years, and of the health board for several years; one of the best-known physicians of northwestern Pennsylvania, died suddenly at his home in Oil City, May 2, from cerebral hemorrhage, aged 65.

John Monroe Lawson, M.D. University of Maryland, School of Medicine, Baltimore, 1892; for a time house surgeon of the University of Maryland Hospital; a practitioner of Union, S. C.; assistant surgeon of the First South Carolina Infantry, U. S. V., in the Spanish-American War, died suddenly in the Keeley Institute, Columbia, S. C., from pneumonia, after an illness of three days, aged 35.

Charles F. McElrath, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1867; twice mayor of El Reno, Okla.; formerly a member of the fifth Oklahoma legislature, of the Oklahoma Board of Medical Examiners and clerk of the district court for the Enid district, died at his home in Sulphur, I. T., April 27, aged 59.

Frederick J. T. Fischer, M.D. Medical College of Ohio, Cincinnati, 1878; a member of the Illinois State Medical Society and the DuPage County Medical Society; a veteran of the Civil War; for three years clerk of DuPage County, died suddenly at his home in Elmhurst, Ill., April 27, from angina pectoris, aged 63.

William H. Barr, M.D. Medical College of Alabama, Mobile, 1875; a member of the American Medical Association and Mississippi Medical Association; physician to the Agricultural and Mechanical College of Mississippi, Starkville, for nearly 25 years, died at his home in that place, March 29, from acute gastritis.

William E. DeCourcy, M.D. Medical College of Ohio, Cincinnati, 1869, chief of the medical staff of St. Joseph's Hospital, Norwood, Cincinnati, and at one time a member of the board of education, died at his home in Cincinnati, May 1, from cerebral hemorrhage, after an illness of three days, aged 57.

David Wesley Bartine, M.D. Hahnemann Medical College, Philadelphia, 1871; for 40 years a teacher in the Central High School, Philadelphia; a veteran of the Civil War, died at his home in Fox Chase, Philadelphia, April 29, from Bright's disease, after an illness of two months, aged 68.

Elroy J. Covey, M.D. Faculty of Medicine of Queens University and Royal College of Physicians and Surgeons, Kingston, Ont., 1859, for many years a resident of Flint, Mich., died at the home of his daughter in Durand, Mich., April 23, after an invalidism of several years.

Sampson Pope, M.D. Jefferson Medical College, Philadelphia, 1858; a member of the legislature from Newberry County, S. C., in 1884; clerk of the senate in 1890-92; a Confederate veteran, died suddenly at his home in Newberry, S. C., from angina pectoris, April 22, aged 70.

Thomas Armonia, M.D. University of Naples, Italy, 1893, a member of Kings County (N. Y.) Medical Society, while despondent from ill-health, committed suicide at his home in Brooklyn, by cutting his throat and severing the arteries of both wrists, April 26, aged 41.

John William Yager, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1878; coroner of Tippecanoe County, Ind., in 1894; a member of the Tippecanoe County Medical Society, died from pernicious anemia at his home in Otterbein, Ind., April 29, aged 51.

A. S. Elwood, M.D. Cincinnati College of Medicine and Surgery, 1861, assistant surgeon of the Fortieth Iowa Infantry during the Civil War, and for many years a practitioner of Golden, Colo., died at his home in Denver, April 9, after a lingering illness, aged 79.

Joseph E. Birkhaeuser, M.D. University of Bonn, Germany, 1865; some-time surgeon for the Milwaukee Northern Road; for three and one-half years assistant surgeon in the Prussian army, died at his home in Milwaukee, April 23, aged 71.

Edgar W. McNichol, M.D. Jefferson Medical College, Philadelphia, 1879, for 36 years a resident of West Jonesport, Maine, died at his home in that city, May 2, from appendicitis, after an illness of two days, aged 60.

Gershom Wenger, M.D. Pennsylvania Medical College, Philadelphia, 1850, one of the oldest practitioners of Reading, Pa., died from senile debility, at his home in Reading, April 30, after an illness of a month, aged 81.

Ambrose N. Spurgeon, M.D. University of Louisville, Medical Department, 1873; coroner of Washington County, Ind., for several years, died at his home near Salem, Ind., April 21, after an illness of several weeks.

Samuel J. Crockett, M.D. Jefferson Medical College, Philadelphia, 1867, a member of the Oswego County (N. Y.) Medical Society and a veteran of the Civil War, died at his home in Sandy Creek, N. Y., April 21.

George Pringle, M.D. McGill University, Medical Department, Montreal, 1865, for many years a practitioner of Eastern Ontario, died at his home in Toronto, February 16, after a long period of invalidism, aged 72.

William H. Louderbeck, M.D. College of Physicians and Surgeons of Baltimore, 1885, of Reader, W. Va., died at the home of his father-in-law in Huntington, W. Va., April 27, from fever, aged 60.

Robert N. Rickey, M.D. Rush Medical College, Chicago, 1869, while despondent on account of ill-health, committed suicide by taking morphin, at his home in Gray's Lake, Ill., April 30, aged 55.

Howard R. Weber, M.D. University of Maryland School of Medicine, Baltimore, 1886, formerly of Highland, Ill., died at the Illinois Southern Hospital for the Insane, Anna, April 26.

Luther Bartlett Newton, M.D. Albany (N. Y.) Medical College, 1874, a member of the American Medical Association and one of the leading physicians of North Bennington, Vt., died at his home in that place, April 25, from pneumonia, after a short illness.

William Reindollar, M.D. University of Maryland School of Medicine, Baltimore, 1847, died at his home in Taneytown, Md., recently, from heart disease, aged 85.

John F. Mains, M.D. Bellevue Hospital Medical College, New York City, 1882, of White Oaks, N. M., died in that place April 23, from erysipelas, aged 48.

Francis D. Gilbert, M.D. Royal College of Surgeons, England, 1841, a retired practitioner of Irvington, Cal., died in San Francisco, May 31, 1905, aged 84.

Ebenezer J. Ingersoll, M.D. Starling Medical College, Columbus, Ohio, 1869, died suddenly from heart disease at his home in Columbus, May 2, aged 69.

John M. Evans, M.D. Starling Medical College, Columbus, Ohio, 1864, died at his home in Phoenix, Ariz., April 24, from nephritis, after a long illness.

Joseph R. Crofton, M.D. College of Physicians and Surgeons in the City of New York, 1899, died at his home in New London, Conn., January 29.

William A. G. Pierce, M.D. Hahnemann Medical College, Philadelphia, 1869, died at his home in Philadelphia, May 3, aged 66.

William G. Steele, M.D. Hahnemann Medical College, Philadelphia, 1886, died at his home in Philadelphia, April 30, aged 41.

Charles Morin, M.D. Laval University Medical Department, Quebec, 1878, of St. Agapit, Que., died July 8, 1905, aged 69.

C. W. Divens, M.D. Indiana Eclectic Medical College, Indianapolis, 1887, died at his home in Wilbur, Ind., April 30.

W. J. Farley, M.D. Willamette University, Medical Department, Salem, Ore., 1878, died at Dallas, Ore., April 24.

Charles Elliott Swan, M.D. Rush Medical College, Chicago, 1899, died at his home in Whiting, Ind., April 29.

William H. Weir, M.D. (Examination, Ohio), died at his home in Edinboro, Ohio, April 27, aged 68.

Book Notices

BODILY DEFORMITIES. The Nature, Causes, Variety and Treatment. A Series of Lectures. By E. J. Chance, F.R.C.S. Edited by J. Poland, F.R.C.S. Second Edition, in two volumes. Vol. I. Cloth. Pp. 315. Price, 6s. net. London: Smith, Elder & Co., 1905.

The appearance of a second edition of a medical work over 50 years after the publication of the first edition is in some respects a rather noteworthy event in medicine, but in the present instance it will probably be welcomed by orthopedic specialists and others. These lectures are certainly interesting reading and Chance's views, if not always altogether modern, were generally original and sensible considering the time of their announcement. One of the notions which he combated is not yet as extinct as it probably ought to be, namely, that of the specific effect of maternal impressions on the fetus. Even his 1905 edition calls it "still *sub judice*." If for nothing else, the book is valuable as the statement of the views of an old authority whom no specialist ought to ignore. The editor has reproduced the peculiar capitalization in some of the lectures; he has not attempted to change the characteristic style, but has simply omitted obsolete tables and notes and added such modern comments as seemed to him appropriate.

THE MODERN MATERIA MEDICA. The Source, Chemical and Physical Properties, Therapeutic Action, Dosage, Etc. Cloth. Pp. 306. Price, $1.50. New York: The Druggists' Circular, 1906.

With a view of affording the pharmacist some information concerning the many new remedies constantly brought to the attention of the medical profession the *Druggists' Circular* has published brief descriptions of these from time to time, which are now offered in book form. This list is arranged in alphabetic order and being a rather comprehensive one, will prove of interest to the pharmacist who is constantly called on to dispense medicines otherwise unknown to him; it will also interest the physician who attempts to keep informed of the new substances exploited to the medical profession. Unfortun-

ately, the book is, in the main, merely compiled from the literature furnished by the dealer and manufacturer; hence it does not give the information regarding certain remedies which one might expect from the introduction, which states that this publication was undertaken "with a view of affording a source of accurate and unbiased information."

State Boards of Registration

COMING EXAMINATIONS.

OREGON State Board of Medical Examiners, Portland, May 10-12. Secretary, Byron E. Miller, Portland.

KENTUCKY State Board of Health, Galt House, Louisville, begins May 15. Secretary, J. N. McCormack, Bowling Green.

INDIANA Board of Medical Registration and Examination, Indianapolis, May 22-24. Secretary, W. T. Gott, Indianapolis.

NEW YORK State Boards of Medical Examiners, Albany, May 22-25. Secretary, Charles F. Wheelock, Albany.

ILLINOIS State Board of Health, Coliseum Annex, Chicago, May 23-25. Secretary, J. A. Egan, Springfield.

NEBRASKA State Board of Health, State House, Lincoln, May 29-30. Secretary, George H. Brash, Beatrice.

Oklahoma March Report.—Dr. J. W. Baker, secretary of the Territorial Board of Medical Examiners, reports the written examination held at Guthrie, March 28, 1906. The number of subjects examined in was 12; total number of questions asked, 90; percentage required to pass, 66.6 in each branch. The total number of candidates examined was 22, of whom 16 passed and 6 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Rush Med. Coll.	(1882) 76.5; (1889)	73.2
Southern Med. Coll., Atlanta	(1891)	68.6
Medical School of Maine	(1899)	83.7
McGill University	(1902)	89.8
Albany Med. Coll.	(1900)	87.1
University of Iowa	(1891)	74.7
University of Louisville	(1903) 68.2; (1905)	70.4
Michigan College of Med. and Surg.	(1896)	76.1
Vanderbilt University	(1903) 76.2; (1905)	76.6
University of Buffalo	(1901)	82
Undergraduate*		
Ft. Worth University	(1900)	75
Hospital Coll. of Med., Louisville	(1890)	80
FAILED.		
Meharry Med. Coll.	(1895)	67.4
University of Louisville	(1881)	59.5
Rush Med. Coll	(1874)	65.8
Marion-Sims Beaumont Med. Coll.	(1905)	64.7
Barnes Med. Coll.	(1901)	65
Grant University, Chattanooga, Tenn.	(1891)	20

* Has been engaged in practice for 21 years.

Rhode Island April Report.—Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the written examination held at Providence, April 5, 1906. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of applicants examined was 18, of whom 8 passed and 10 failed, including one non-graduate. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
University of Naples, Italy	(1905)	75
Yale University	(1905)	80.1
College of P. and S., New York	(1902) 82.1; (1904)	82.6
Baltimore Med. Coll.	(1905)	81.8
Harvard University	(1904)	78.5, 90.1
Rush Med. Coll.	(1903)	80.6
FAILED.		
Baltimore Med. Coll.	(1901)	65.9
College of P. & S., Boston	(1905)	68.1, 73.1
Kentucky School of Medicine	(1904)	62.6
Laval University	(1905)	55.6, 68.4
Tufts College Medical School	(1905)	71.6
University of Naples, Italy	(1890)	56.4
University of the South	(1905)	61.0
Non-graduate		55.4

Utah April Report.—Dr. R. W. Fisher, secretary of the Utah State Board of Medical Examiners, reports the written and oral examination held at Salt Lake City, April 2-3, 1906. The number of subjects examined in was 19; total number of questions asked, 85; percentage required to pass, 75. The total number of candidates examined was 8, of whom 5 passed and 3 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Northwestern University	(1904) 85; (1905)	86
College of P. and S., Chicago	(1900)	87
University of Colorado	(1905)	81
Chiba. Med Coll., Japan	(1903)	75
FAILED.		
Baltimore University	(1902)	*50
University of Kansas	(1904)	74
St. Louis University	(1905)	73

* Took only 9 subjects.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending May 5, 1906.

Flagg, Chas. E. B., asst.-surgeon, reports arrival at San Francisco, Cal., with 14th Infantry, for temporary duty, from Vancouver Barracks, Washington.

Allen, John H., asst.-surgeon, left Fort Sill, Oklahoma Territory, en route to San Francisco, Cal., for temporary duty.

Connor, C. H., asst.-surgeon, reported for temporary duty at Army Medical Supply Depot, General Hospital, Presidio of San Francisco, Cal., from leave of absence.

Kieffer, Charles F., surgeon, ordered to accompany 11th Infantry from Fort D. A. Russell, Wyoming, to San Francisco, Cal., for temporary duty.

Noble, R. E., asst.-surgeon, ordered to proceed immediately from Fort Casey, Washington, to San Francisco, Cal., for temporary duty.

Devereux, J. R., asst.-surgeon, left Fort Logan, Colo., en route to San Francisco, Cal., for temporary duty.

Banister, John M., deputy surgeon-general, ordered to proceed from Fort Riley, Kans., to General Hospital, Washington Barracks, D. C., for observation and treatment.

Whitcomb, C. C., asst.-surgeon, granted ten days' leave of absence on completion of examination for advancement.

Flagg, Chas. E. B., asst.-surgeon, ordered to report in person to Lieut.-Col. Geo. H. Torney, deputy surgeon-general, president, examining board, at the Presidio of San Francisco, Cal., for examination to determine his fitness for promotion.

Page, Henry, asst.-surgeon, reported at Army General Hospital, Presidio of San Francisco, Cal., for temporary duty, from Philippines Division.

Noble, R. E., asst.-surgeon, reported for temporary duty, Medical Supply Officer, Golden Gate Park, San Francisco, Cal.

Reno, Wm. W., asst.-surgeon, left Fort Riley, Kans., on ten days' leave.

Boyer, P. L., asst.-surgeon, left Fort Sam Houston, Texas, with Second Squadron, 1st Cavalry, en route to San Francisco, Cal., for temporary duty.

Woodbury, Frank T., asst.-surgeon, reports his arrival at San Francisco, Cal., for temporary duty, returning to Philippines Division from leave.

Lewis, William F., asst.-surgeon, in addition to his other duties, will take charge of the office of the chief surgeon, headquarters, Department of the Lakes, Chicago, Ill.

Mason, George L., dental surgeon, ordered from Fort Morgan, Ala., to Fort McPherson, Ga., for duty.

Whinnery, Jean C., dental surgeon, left Fort Lawton, Washington, and arrived at Vancouver Barracks, Washington, for duty.

Ware, William H., dental surgeon, left Fort Wingate, N. M., on leave of absence for one month.

Hogan, David D., and Springwater, Samuel A., contract surgeons, recently returned from Philippines Division, have been assigned to temporary sanitary duty at San Francisco, Cal.

Tuttle, George B., and Porter, Elias H., contract surgeons, recently returned from Philippine service, have been assigned to temporary duty at the Presidio of San Francisco, Cal.

Cass, William E., contract surgeon, ordered from Vancouver Barracks, Wash., with the 14th Infantry to San Francisco, Cal.

Kuhn, Charles F., contract surgeon, ordered from Fort Lawton, Wash., with Companies B and D, 10th Infantry, to San Francisco, Cal.

Felts, Robert L., contract surgeon, granted leave of absence for one month, with permission to apply for extension of one month, ten days.

Koyle, Fred T., contract surgeon, left Fort Bliss, Texas, for duty at Fort McDowell, Cal.

Brown, Wilmont E., contract surgeon, left Fort Walla Walla Wash., and arrived at Fort Stevens, Oregon, for temporary duty.

Pinquard, Joseph, contract surgeon, left Fort Leavenworth, Kans., to accompany troops marching from Fort Mackenzie, Wyo., to Fort D. A. Russell, Wyo.

Hayes, Melville A., contract surgeon, returned from temporary duty at Fort Wright, Wash., to his proper station, Vancouver Barracks, Wash.

Griswold, W. Church, contract surgeon, left Fort Delaware, Del., on leave of absence.

Whinnery, Jean C., dental surgeon, ordered from Vancouver Barracks, Wash., to Fort Walla Walla, Wash., and Boise Barracks, Idaho, for dental work.

Bernheim, Julien R., dental surgeon, left Plattsburg Barracks, N. Y., for duty at Fort Wadsworth, N. Y.

Lauderdale, Clarence E., dental surgeon, left Fort Sam Houston, Texas, for Seattle, Wash., to sail thence on the *Sherman* for Philippine service.

Wolven, F. Homer, dental surgeon, left Fort Strong, Mass., for duty at Fort Warren, Mass.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending May 5, 1906:

Lowndes, C. H. T., surgeon, detached from the *Texas* and ordered to the *Virginia*.

Evans, S. G., surgeon, detached from the Naval Recruiting Station, Denver, and ordered to the *Louisiana*.

Morris, L., surgeon, detached from the *Iowa* and ordered home to wait orders.

Johnson, M. K., surgeon, detached from the *Maine* and ordered to the *Iowa*.

Williams, R. B., P. A. surgeon, detached from the *West Virginia* and ordered to the *Maine*.
Dykes, J. R., asst.-surgeon, ordered to the Navy Yard, New York.
Dean, F. W. S., asst.-surgeon, ordered to the Naval Recruiting Station, Denver.
Stalnaker, P. R., asst.-surgeon, ordered to the *West Virginia*.
Mears, J. B., asst.-surgeon, ordered to the *Minneapolis*.
Reeves, O. S. K., asst.-surgeon, detached from the *Minneapolis*, and ordered home to wait orders.
White, E. C., asst.-surgeon, ordered to the *Virginia*.
Haynes, J. P., asst.-surgeon, appointed asst.-surgeon, with rank of lieutenant, junior grade, from April 16, 1906.
Steadman, W. G., Jr., acting asst.-surgeon, appointed acting asst.-surgeon from April 27, 1906.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending May 2, 1906;

Kalloch, P. C., surgeon, granted leave of absence for one day, April 30, 1906.
Carrington, P. M., surgeon, granted leave of absence for three days, from April 30, 1906, under Paragraph 189 of the Service Regulations.
Nydegger, J. A., P. A. surgeon, leave of absence granted P. A. Surgeon Nydegger for seven days, from April 23, 1906, amended to read for five days only.
Lumsden, L. L., P. A. surgeon, granted leave of absence for two months, from June 1, 1906.
Stansfield, H. A., P. A. surgeon, granted leave of absence for five days under Paragraph 191 of the Regulations.
Stansfield, H. A., P. A. surgeon, granted leave of absence for fourteen days, from April 30, 1906.
Burkhalter, J. T., P. A. surgeon, granted extension of leave of absence for four days, from May 3.
Foster, A. D., asst.-surgeon, granted leave of absence for one month, from April 1, 1906, on account of sickness.
Robertson, H. McG., asst.-surgeon, granted leave of absence for one month and twenty-one days, from May 14, 1906.
Mason, W. C., acting assistant surgeon, granted leave of absence for three days, from April 30, 1906.
Stearns, H. H., acting asst.-surgeon, granted leave of absence for five days under the provisions of Paragraph 210 of the Service Regulations.
Tuttle, Jay, acting asst.-surgeon, granted leave of absence for thirty days, from May 1, 1906.
Ryder, L. W., pharmacist, granted leave of absence for two days, from April 30, 1906.
Bell, J. M., pharmacist, granted leave of absence for thirty days, from May 18, 1906.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended May 4, 1906.

SMALLPOX—UNITED STATES.

California: Los Angeles, April 14-21, 8 cases; Ukiah, March 26, 1 case, in State Insane Asylum.
Connecticut: Putnam, March 1-23, 30 cases.
Delaware: Wilmington, April 21-28, 1 case.
Florida: General, April 21-28, 8 cases; Jacksonville, April 14-21, 2 cases.
Illinois: Chicago, April 21-28, 1 case.
Missouri: St. Louis, April 14-28, 5 cases.
New York: New York, April 21-28, 2 cases, 1 death.
Maryland: Baltimore, April 21-28, 3 cases.
Ohio: Cincinnati, April 20-27, 2 cases.
Tennessee: Knoxville, April 20-28, 1 case, in county; Memphis, April 14-28, 27 cases.
Washington: General, March 1-31, 11 cases; Seattle, April 14-21, 1 case.
Wisconsin: Appleton, April 1-28, 1 case; La Crosse, April 14-28, 3 cases; Milwaukee, 8 cases.

SMALLPOX—INSULAR.

Hawaii: Honolulu, April 7-14, 1 case, 1 death.

SMALLPOX—FOREIGN.

Africa: Cape Town, March 17-24, 8 cases.
Argentina: Buenos Ayres, Jan. 1-31, 66 cases.
Canada: Toronto, April 14-21, 3 cases.
Chile: Iquique, March 24-31, 3 cases, 3 deaths.
China: Hongkong, March 10-17, 9 cases, 7 deaths; Nanking, March 24, 1 case.
France: Paris, March 31-April 7, 2 cases, 1 death.
Gibraltar: April 8-15, 1 case, 1 death.
Great Britain: Bristol, April 7-14, 2 cases; Glasgow, April 13-20, 1 case.
Greece: Athens, March 25-April 7, 4 deaths.
India: Bombay, March 27-April 3, 16 deaths; Calcutta, March 18-25, 276 cases; Karachi, March 25-April 1, 57 cases, 32 deaths; Madras, March 24-30, 33 cases; Rangoon, March 19-26, 66 deaths.

CHOLERA—FOREIGN.

India: Bombay, March 27-April 3, 13 deaths; Calcutta, March 17-24, 37 cases.

PLAGUE—INSULAR.

Hawaii: Honolulu, April 25-30, 3 cases.

PLAGUE—FOREIGN.

Brazil: Rio de Janeiro, March 18-25, 7 cases, 1 death.
China: Hongkong, March 10-17, 7 cases, 7 deaths.
India: General, March 10-17, 13,325 cases, 10,782 deaths; Bombay, March 27-April 3, 821 deaths; Calcutta, March 17-24, 176 deaths; Karachi, March 31-April 1, 96 cases, 69 deaths; Rangoon, March 19-26, 99 deaths.

Society Proceedings

AMERICAN MEDICAL ASSOCIATION, Boston, June 5-8.

American Climatological Assn., Atlantic City, N. J., May 12-14.
American Assn. of Physicians, Washington, D. C., May 15-16.
Missouri State Medical Association, Jefferson City, May 15-17.
Illinois State Medical Society, Springfield, May 15-17. (Note change of time back to date originally planned.)
Iowa State Medical Society, Des Moines, May 16-17.
North Dakota State Medical Association, Fargo, May 16-17.
New Hampshire Medical Society, Concord, May 17-18.
Amer. Assn. of Path. and Bacteriologists, Baltimore, May 18-19.
American Gynecological Society, Hot Springs, Va., May 22.
South Dakota State Medical Association, Watertown, May 22-24.
Connecticut State Medical Society, New Haven, May 23-24.
Indiana State Medical Association, Winona Lake, May 23-25.
Michigan State Medical Society, Jackson, May 23-25.
Med. Soc. of State of North Carolina, Charlotte, May 29-31.
Rhode Island Medical Society, Providence, May 31.
American Dermatological Assn., Cleveland, May 30-June 1.
American Pediatric Society, Atlantic City, May 30-June 1.
American Surgical Association, Cleveland, May 30-June 1.
American Laryngological Assn., Niagara Falls, May 31June 2.
American Assn. of Genito-Urinary Surgeons, New York, June 1-2.
American Academy of Medicine, Boston, June 2-4.
Amer. Assn. of Life Insurance Exam. Surgeon, Boston, June 4.
American Gastro-Enterological Assn., Boston, June 4.
American Urological Assn., Boston, June 4-5.
American Proctologic Society, Boston, June 5-6.
American Medico-Psychological Society, Boston, June 12-15.
Massachusetts Medical Society, Boston, June 12-13.
Maine Medical Association, Portland, June 13-15.
Minnesota State Medical Association, Minneapolis, June 20.
West Virginia State Medical Assn., Webster Springe, June 20-22.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

The 108th Annual Meeting, held at Baltimore, April 24-26, 1906.

(*Continued from page 1394.*)

Occult Hemorrhages in Diagnosis of Gastric Ulcer and Carcinoma.

DRS. J. FRIEDENWALD and L. J. ROSENTHAL have in many instances been able to rely on the constant absence of this sign as sufficient evidence to exclude the presence of ulcer and cancer of the stomach, and favoring the diagnosis of gastritis or some gastric neuroses. Thirty-five cases of ulcer of the stomach were examined and occult blood was found in the stools in 26 cases; not every examination, however, but usually some days before the patient had entered on the ulcer cure, which usually caused the disappearance of the blood. If, under this treatment, the blood does not disappear, the authors consider an operation indicated. Twenty-three cases of cancer of the stomach were also examined and in only a few instances was the sign found absent. It was always found present in 19 cases, and was noted occasionally in 4.

New Physical Sign of Aneurism of Aortic Arch.

DR. GORDON WILSON stated that on listening at the extreme right of the first interspace the voice sound is transmitted normally. Moving the stethoscope toward the sternal border there is reached a point at least half an inch from the sternal border, where the transmitted voice sounds suddenly change, becoming more distinct, higher pitch, and having a slightly nasal quality. In aneurism this area extends some 5 cm. on either side of the mid-sternal line in the first interspace. This sign was verified by the study of normal chests and of three cases of aneurism of the aorta arch and one case of aneurismal dilatation accompanying aortic insufficiency. In none of these cases was a tumor or pulsation visible.

Assault on Tropical Disease.

DR. LEWELLYS F. BARKER said that tropical pathology is rapidly becoming recognized as a special field in medicine, a field worthy of cultivation by itself for its own sake. Perhaps history does not afford a more striking impulse to medical research than that excited in recent times by the struggle of the nations for the control of the tropics. A great impetus has been given to American interest by our new relations to the West Indies and the Philippines and it has been greatly augmented by the construction of the Panama canal. The United States is far behind other countries in providing special institutes, hospitals and course of instruction in tropical diseases, but in Manila a biologic laboratory has been established with Dr. Richard P. Strong as director, which guarantees the thorough investigation of tropical pathology there. Germany has at Hamburg the Institute for Naval and Tropical Hygiene, England has its London School of Tropical Medicine and its Liverpool School and Special

Laboratory for Tropical Medicine and Parasitology. In France there is the Institute of Colonial Medicine. Portugal has a school of tropical medicine. Expeditions and commissions for the study of tropical diseases have been most fruitful.

A New Pyriform Organism.

DR. LEONARD K. HIRSHBERG reports the case of a man, aged 36, with elevated temperature, lasting eight weeks, which never rose above 102, with meningeal symptoms, photophobia, tremors, irritability, subsultus tendinum and joint involvement. The Widal reaction was constantly absent; leucocytosis, 14,000. Cultures taken from his blood revealed a lemon-yellow diplobacillus, pathogenic for guinea-pigs and rabbits, negative to Gram's stain, actively mobile, producing no indol, not liquefying gelatin until the seventh day and producing no gas or lactose, saccharin or glucose media, milk, manite litmus are acidified. The organism is killed at the exposure of 60 C. for ten minutes. At the suggestion of Prof. William H. Welch the organism was called *Bacillus pyriformis*.

Treatment of Prolapsed Ovaries.

DR. WILLIAM S. GARDNER recommended an operation which consists in shortening the elongated ovarian ligament by a couple of fine silk stitches. The first stitch takes a light but firm hold in the uterus near the lower border of the ovarian ligament; it is then continued through a portion of the ligament and is inserted firmly into the ligament near the ovary. The second stitch is placed in the same way, but near the upper border of the ligament. When these stitches are tied, the ovary is brought up close to the uterus, but still retains a limited mobility independent of the uterus and a complete mobility with the uterus. Retrodisplacement, if present, should be operated on at the same time.

General and Metastatic Gonococcus Infections.

DR. R. I. COLE said that it is not sufficiently realized that there are other primary infections besides these of the genital tract, and that these are of frequent occurrence, though often not recognized as such, rectal, for instance. In this rectal form there is danger of chronicity and stricture, stricture here probably being more frequent from gonorrhea than from syphilis. Gonorrheal stomatitis is also not rare. Wound infection also occurs and infection of the umbilical cord is known. The gonococci also enter the blood and set up septicemia and distant infections, the proof being first furnished by Thayer and Blumer in 1896, in a case of endocarditis. A number of cultures of the organism have been made from the blood. Cole had a case of septicemia which got well in which the organism was found in the blood, but there were no local lesions, and it may be that these cases are more frequent than is suspected. Gonorrheal infection is one of the causes of puerperal fever. The most frequent extragenital metastatic infections are those of the joints, from which the organisms have been obtained in a large number. It is not true that this joint involvement follows the chronic urethritis oftener than the acute. Cole's observations showed that the implication of the joints was nearly always a polyarthritis as often as in rheumatism. In one case there was tenderness and swelling over the thyroid and in one there was involvement of the nervous system. It has only recently been ascertained that gonorrheal peritonitis occurs in the male as well as the female. He saw one case of bilateral femoral phlebitis and one of plastic iritis.

(*To be continued.*)

THE PHYSICIANS' CLUB OF CHICAGO.

DR. C. S. BACON in the Chair.

The Relation of the Physician to Compulsory Sickness and Invalidity Insurance.

The Chairman said that physicians are interested in compulsory sickness and invalidity insurance, in that it has a broad bearing on the welfare of the state. It also affects the medical profession. Sickness and invalidity insurance require the co-operation of physicians; physicians must be employed, and if some system of insurance which requires the employment of physicians should come up, it would seem as if this kind of insurance would also meet with the approval of the present indemnity companies and others, whose efforts would be to secure a low or unfair rate of fees for physicians, so that physicians should have an intense interest in this subject.

PROF. C. R. HENDERSON of the University of Chicago discussed two aspects of workingmen's insurance. Intelligent men in America have not given insurance the thought and consideration it has received on the other side of the Atlantic. Countries like Denmark and Scandinavia are in advance of the United States in taking social care of the working classes. Insurance for the workingman is now being placed on a purely business basis; it has been taken out of its philanthropic and charitable sphere. Men in large cities are an occupational asset; their health, life and longevity are matters of national economic importance. The causes of diminution of industrial efficiency should be found out and measured, and in considering these the help of the medical profession is needed. It is an indispensable element in the progress of workingmen's insurance in America. It is necessary to get scientific and precise knowledge as to the facts in regard to the causes of sickness, especially of occupational diseases, which interfere with the public health, and also as to the causes of accidents. The methods of taking care of the health and wealth-producing power of the people depend on accurate knowledge.

He thinks that with medical supervision of factory inspection and legal arrangements made for it, many things might be found out in regard to the causes of accidents and sickness which are now deliberately concealed by business men because of the iniquities, because of the antiquated liability law which is cursing the nation. For the economic progress of the human race it is necessary that every cause of disease that is inherent in occupation or in the habits of the working people should be known. This information can be furnished by physicians. Sensible legislation can not be secured without it; and protective legislative measures must be obtained on strict, precise and comprehensive knowledge of the causes of both sickness and accident in connection with disease, and if actuaries can not furnish such facts without there being unfair litigation, then the manufacturers must be protected. There should exist a code of protection, and in the formation of it against disease and accident in connection with occupations, the medical profession should be in a commanding position and be the administrative authority.

What are some of the protective measures? If one will go through a German work shop he will see a red mark or shack painted red, which means that it is a dangerous place. The workingman is protected from accident, and if he is injured it will mean a financial loss to the company, because that workingman is an economic asset of the nation, and the protection of him is the protection of the public property and public welfare.

Speaking of the prevention of tuberculosis, he said that this disease is one of the most serious causes of invalidity. This disease is largely connected with occupation.

As to the policy of insurance, it means that every workingman is exposed to calamities which may befall anyone. As a matter of fact, they fall on a certain average number of persons varying with the different occupations. All of them are causes of economic loss and social distress, sickness, loss of time from sickness, loss of wages from accident, loss of income from invalidity, sometimes occurring before old age, and always with it. In Germany a part of the risk of sickness belongs to the community. For instance, one-third of the sickness from tuberculosis may be said to belong to the community, which can be prevented by that community in great part. Many causes of sickness can be partly prevented by the community. The workingman carries two-thirds of the premium and his employer pays the other third. But does the employer pay it? Primarily, he does, but a large part of it comes back on the working people, and often the workingmen have to carry it. In the case of invalidism, in old age, the workingmen pay half the premiums; the employers pay the other half. This comes to the point where the German empire pays $12.50 a year to old people or invalids who receive pensions. It is not claimed that such a system can be

introduced in the United States, but the principle is being introduced. In 1897, after having tried to amend, repair and tinker the common liability principle, Germany finally passed a law that in every case the employer should pay a certain indemnity for a certain time, or in case of death a certain lump sum for persons injured in his employ. This threw the burden on the employer, and the natural result was that employers banded together to form mutual insurance companies. Already railroad insurance companies have been organized in America.

If workingmen's insurance is established on a wide scale in America, the medical profession will at certain points have to bear their share of the public sacrifice. This problem ought not to go before the medical profession in an unintelligent way. It should be met frankly and candidly by the state, and the evils that have crept into the German administration should be guarded against in advance. Medical men in Germany are not properly paid for their services. There is general complaint there, and physicians are trying to remedy it. Under a proper system of insurance charity cases will be eliminated. They will be reduced in number. There is no profession which is so heavily burdened with charity cases as is the medical profession. There is no set of men giving away so much of their services to the poor as the doctors. Something will have to be done to dispose of charity cases which do not belong to insurance. Paupers can not be insured. They have to be cared for by charity or institutional relief. The only advantage of the insurance system among people to-day who ask for relief, who need the insurance system, is that they are able to pay a reasonable sum for it, because when they get sick they have nothing with which to buy the necessities of life; and they are earning nothing. So the doctor or the undertaker is the last man to get anything out of them. If there can be eliminated from the working class, all except the capable, those who have regular wages, and who can lay up something in times of accidents, invalidism, and old age, the medical profession is relieved of an actual burden and passes it over to the charity institutions or to insurance organizations, where it belongs. The medical profession derives most of its income from the well-to-do classes. In Germany physicians care for those who are willing and able to pay. They can buy their insurance from the company; they do not need sympathy or attention. This question concerns people who are earning for a family $350 a year, or less than $450 a year, up to $800 or $900.

It is a state problem to see that a physician gets his pay for services rendered, and whether he does or not, will depend on the influence he has with the committees or with the legislature. Physicians can not do their work well unless they are paid for it. The interests of the medical profession should be protected at every point. It will put the medical profession, so far as their practice among the working classes is concerned, in a more dignified, useful position than any method that has ever been tried where the social insurance principle has not been accepted. In social insurance, as applied to the industrial group, the medical profession have before them a new era. They will get paid for preventive medicine, and not merely for curing and mending. Physicians take a great step in advance when they are able to increase industrial longevity and industrial efficiency.

In closing, Professor Henderson solicited information from physicians in regard to the causes of sickness and accidents, saying that such information as was furnished him would be brought before the commission.

DR. FRANK BILLINGS spoke on the principles of administration of the law in Germany. He has talked with Germans in this country as to the benefit of insurance to the community as an economic principle, and also with reference to the systematic care of the sick without pauperizing them. It has been an unusual burden for the medical profession, particularly to those who have small incomes, in Germany, and this is due to some clause in the administration of the law in Germany which possibly would be overcome in America. The pauperizing effect in northwestern Germany among the medical profession was so great two years ago that at Leipsic the medical profession bound themselves not to visit any of these people. This was followed by practically the formation of a union among the physicians of Germany elsewhere, with the result that they petitioned the Reichstag to modify the law on account of receiving such small fees. The fees in some communities in Germany only amounted to 2½ cents.

The law, as administered in England, is better in the rural communities. The statement has been made that in England practitioners in the country receive as little as 2½ pence for visits. Not only has this a pauperizing effect, but it results in superficial treatment of the sick. A physician who receives no compensation under a contract which he is obliged to make gives superficial attention to his patient. Under the contract system the insured had no choice as to the doctor he would have, and this creates a competition for influence to get positions. In all probability many of these evils in the German law will be removed from the establishment of this insurance in America.

Insurance is bound to come. It does not make any difference what effect it will have on the medical profession, it is coming, and members of the medical profession should be willing to enter into an earnest investigation of the subject, and attempt by their knowledge and discussion to so modify the principles of its establishment that it will work as little hardship as possible, and at the same time be efficient in its performance. In many of the large corporations, like steel mills, iron mines, copper mines, lumber districts, planing mills, the rural contract systems exist. Reference was made to a practitioner who derives most of his income from attending employés at planing mills. This large corporation paid the physician 50 cents for each employé per month, but another physician secured the work by contracting to do it at one-half the sum, namely, 25 cents. That principle would be in a sense accentuated in this country, unless the principle can be modified in its working. In the country it will amount to something more than in the city. The individual or employé who has an income of $400 a year can not very well afford to pay a doctor very much. But the individual in the city, who earns more than the man in the country, who earns say $800 or $1,000, is able to pay his attending physician fair fees. The doctor who is receiving compensation for attendance on people will be more interested in keeping them well than in seeing them sick, because he will earn his money easier that way. And while it may work a hardship on the whole medical profession at the beginning, more particularly on rural than on city physicians, still the system of insurance will have an influence in preventing illnesses which every physician works for, and the wholesome effect of it on the community will be great.

DR. ARNOLD C. KLEBS said that he has talked to railroad men on the subject of sick-benefit insurance, and some interesting points were brought out. He said to some of them frankly, that their first idea in getting up a sick-benefit scheme was to advertise themselves as charitable men; then they soon realized that it paid to do it, because, first of all, by preventing accidents they saved sick benefits. They have determined scientifically what kind of accidents will happen in certain departments of the railroad, and they have to pay benefits to those who are injured. This has induced railroads to introduce safety appliances; the railroads save money by these appliances, which they can utilize for other purposes, so that the financial gain by this method of prevention of accidents is apparent.

Among the diseases that attack the laboring man, tuberculosis is the most important. The German sickness insurance law was passed in 1883; after that in 1889 the invalidity insurance law was passed. Sickness and invalidity insurance had to face a financial problem, in that it was found that one-half and more of those insured were tubercular. Tuberculosis is a most tremendous tax, not because it kills people, but because it disables them for such a long time. Invalidity insurance was recognized and utilized for the purpose of building sanatoria. It was proven by the first sanatoria established by Brehmer and Dettweiler that with thorough hygienic management of these cases, the insured could be brought back to earning capacity after a certain length of time. After an average treatment of three months these people were restored to an

earning capacity in fully 80 per cent. of the cases. But that means not only the restitution of men to their earning capacity, but that every one of these men has been educated in the principles of hygiene, and goes out as an apostle of this teaching. Prevention is the real and greatest task of the physician. He may prescribe medicines and he may operate, but where he really does good is in the matter of prevention. That is the highest task of medical men, and a scheme which will put the great mass of people, the workingmen, on a basis of self-defense against disease, making them able to pay by deducting small amounts from their wages in time of health, will remunerate the medical men for preventive work.

DR. FERNAND HENROTIN said that compulsory sickness and invalidity insurance is bound to come. It is a part of the development of our republican form of government. The government depends on its unit of citizens for the management of it. Each man has to do his share or the republic will not stand. Contract work is allied very closely to the work of the physician and to the subject of sickness insurance. There is no question but that a large number of sick people will have to be attended at low prices, and that means in one way or another a contract system. Physicians will apply themselves to the problem under discussion and eventually, he believes, find methods by which the contract system and the paying of low fees in caring for the sick and management of tuberculous people and all that class, can be brought about without either pauperizing the people or without lowering their estimation of physicians who attend them for this or that fee, or for a song. The solution of the contract system will eventually take some shape, but he is not prepared to say what it will be. He believes the profession will stand divided that it is wrong for a physician to do medical work on the contract plan. But as sick people must have medical attendance, he thinks it must take some such shape as this, that certain communities will be divided into certain districts; that contracts will be entered into between a city or a county, but not with any one physician or individual, by which certain districts will be taken care of by a group of doctors, who will look after the sanitation of the district, who will look after the preventive part of medicine, who will attend the sick, who will divide the work properly, who will compare notes, keep books, and decide upon the proper way to do things without pauperizing the patients or without pauperizing or humiliating doctors. An individual who earns $400 a year ought to pay his physician more than the man who earns $300. Each man should pay what he can, and each district or each group should have ratios in proportion to what they earn. The medical profession can not commit itself to any contract by which it is going to attend sick people for the lowest possible price. There is a certain remuneration in proportion to the ability of the individuals to pay, which must be paid; that this ratio must always exist; that we never give a lower price except for cause, and that it must be distinctly shown that in helping sick people we must do nothing either to pauperize them or degrade ourselves.

DR. M. L. HARRIS said that for several years past he has been physician of large corporations, and during this time he has had under his personal supervision thousands of accident cases, and has had a hand in distributing millions of dollars of indemnity. This money many times was not distributed in a just manner, for the reason that many of those injured did not receive what they were justly entitled to. On the other hand, a much larger number received many times the amount they were entitled to. The reasons for this are many, principally the law as it now exists, and largely because of dishonest lawyers and dishonest, ignorant doctors. He said he could mention a number of instances where people have gotten on cars for the express purpose of receiving an injury; had taken with them witnesses to see the accident, had people stationed at the corner to see the accident, and had a doctor waiting around the corner to take care of them as soon as the accident occurred, and then had the patients hustled to a particular doctor as though they were injured.

He did not agree with the statement that these companies started an indemnity plan as a matter of charity. Corporations are not known as eleemosynary institutions. They started these indemnity schemes as a matter of economy. There is little incentive for corporations to carry on these indemnity schemes under the present law. He has attempted to look after the indemnity plans of corporations, and while they can be carried out honestly, so that they will be an economic investment, so many times they are carried out dishonestly that there is little incentive to do it. An employé receives an injury; the company looks after him; they pay him his indemnity according to contract, and when they have done that and have fulfilled their part of the contract, the individual turns right around and sues the company for large damages, and many times he gets it. The company says: What is the use of us paying this man his indemnity to give him money to turn right around us and fight us, and win a large sum of money? The man may have signed a contract that he will accept the indemnity paid him by the company in lieu of damages, but the courts say that the contract is of no value, because the man has no right to sign away his rights in that way; that what the company has paid him in the way of indemnity he was entitled to. These are most important obstacles in the present law. Before companies will continue under the present law there must be some other law enacted of relieving these companies from further liability after they have once fulfilled their obligations of indemnity under contract. There must be some just way of arriving at a just estimate of what the damages are.

Physicians go into court; they testify before the jury; the average lawyer does not want a man to testify who knows anything about the case. He wants a medical man who is dishonest, and who will testify to what he wants him to. He wants a medical man who is ignorant, who does not know, and the man who is ignorant and does not know what he is talking about nearly always makes the best impression on the jury. He will testify that he believes anything to be so, because he is ignorant of anything himself. That is a sad state of affairs for the medical profession, but it is the truth. Until some way can be devised to determine the amount of liability and the extent of the damage done, companies will fight for their existence. They are not going to favor indemnity. Companies are anxious and willing to pay a just indemnity if it can be arrived at justly. If we can devise some insurance law which will do that, companies will gladly welcome it. He has studied the German laws, and while they have excellent and valuable points, he does not think they can be applied to American institutions at present.

DR. WILLIAM H. WILDER asked whether any consideration is to be taken of the relation that the different dispensaries in large cities bear to the insurance problem. The dispensary evil in large cities is an immense burden. It is not being handled in the broadest kind of way, as there is so much jealousy and rivalry on the part of physicians as to who shall do this work for nothing. Sometimes an almost unseemly scramble takes place for different positions on dispensary staffs. In many of the dispensaries in Chicago hundreds of patients are treated annually who can afford to pay something, but who are treated for nothing. The first step that should be taken is, whenever a patient comes to a medical clinic and asks for something for nothing, some means should be devised by which we may know what we are doing. In the New York Eye and Ear Infirmary they have an officer in attendance every day, who notices everyone who comes in. Patients are required to make a deposit of a quarter for a card of admission, and the revenue from this source alone amounts to $10,000 a year. This officer of charity notices if there is any individual who seems to be an impostor. He takes his address, and he is looked up. This is not done in Chicago. The medical profession ought to co-operate with the bureau of charities in this matter.

PROFESSOR HENDERSON, in closing the discussion, said with reference to the suggestion made by Dr. Wilder, that some of the people he described as seeking charity when they are able to pay ought to be passed over for perjury to the criminal arm of the law. There is, however, a charity aspect to the dispensary, and he hopes the medical profession will arrange with the bureau of charities to have certain cases investigated, so that those who can afford to pay should do so.

MEDICAL ASSOCIATION OF GEORGIA.

Fifty-seventh Annual Meeting, held at Augusta, April 18-20, 1906.

The President, DR. W. Z. HOLLIDAY, in the Chair.

(*Continued from page 1395.*)

Some Remarks on Chronic Conditions.

DR. H. MCHATTON, Macon, said that with the present relative positions so commonly held and the lack of correlation between the various medical attendants, a patient is in extreme danger. To illustrate, a patient with an active secondary syphilis, which had attacked two organs, consulted the most accessible authority on diseases of each organ. Each authority made a diagnosis of syphilis, and put the patient on the mixed treatment. As each of them had every reason to believe that he was the only attendant, and the patient was very good about taking his medicine, the result was most unpleasant. He stated that when a patient who is not directly under the observation of a general practitioner, whose general condition can not be fully and absolutely accounted for by the local lesion which he is treating, comes to the specialist, it is as much his duty to refer the patient to a competent general practitioner as it is for the general practitioner to refer him to the specialist, and even more so, because a life is often lost that otherwise can be saved. The innocent patient has every reason to believe that he is getting the full benefit that can be derived from medical science when he is not. Many errors in diagnosis are not due to lack of knowledge, but to incomplete examinations and insufficient time of observation of the case. One should not hesitate to tell a patient that he does not know what the disease is, and that it may take time and repeated examinations to make an accurate diagnosis.

Dementia Praecox.

DR. J. W. MOBLEY, Milledgeville, said that dementia præcox is a chronic progressive psychosis with a peculiar tendency toward dementia, and having its determining features represented in a peculiar chain of symptoms of excitement, delirium, stupor, mannerisms, negativism, verbigerations, stereotopy and cerea-flexibilitas.

Anterior Poliomyelitis.

DR. J. CHESTON KING, Atlanta, said that an opinion can not be given as regards recovery from this condition until paralysis takes place. At the expiration of two weeks the muscles that react to faradism will recover, and those that do not react will either be permanently paralyzed or partially so. In the latter case, as long as the retention of reaction to the constant current remains, there is some hope that the faradic reaction may return and with it the power of the muscles.

At the onset of the attack, the patient should be kept quiet in bed and should lie on the face or one side, and hot applications should be made to the spine. He said that the destroyed cells can not be replaced, but recovery can be facilitated by maintaining the nutrition of the paralyzed parts. When the attack is due to cold, the limb should be kept warm from the first; diaphoretics, such as liquor ammoniæ acetatis and citrate of potash, should be given. He also recommends the use of ergot and belladonna. After the disease has assumed the stationary condition, cod-liver oil and tonics are used. Local treatment should not be used until at least a month has elapsed. The limb should then be bathed in hot salt water and rubbed with a rough towel, and especial care should be taken to keep the limb warm with thick stockings. The muscles should also be rubbed systematically every night and morning. The constant current should be used, both because it dilates the blood vessels of the part and because the muscles will contract under it and not under faradism.

Paramyoclonus Multiplex.

DR. E. BATES BLOCH, Atlanta, reported a case of this affection. The case was interesting, not only on account of the rarity of the affection, but because of the rapidity of the muscular contractions, which far exceeds those met with in any other case the author has ever heard of, in that the greatest number of muscular contractions reported heretofore has been 180. While many writers prefer to class this disease with hysteria, it seems very doubtful if this is the proper view to take of it, in that the motions are such as can not be imitated by any effort of the will, and also that not only individual muscles may be seized with these shock-like contractions, but even portions of muscles may be so affected, and the violent muscular contractions may take place even without locomotor effect. The disease is very commonly associated with epilepsy.

Recent Studies in Rabies.

DR. JAMES N. BRAWNER, Atlanta, called attention to the discovery of certain bodies in the central nervous system of animals dead of rabies by Negri, which Negri believes to be the specific germ of this disease. The value of these Negri bodies as a means of rapid diagnosis is now generally recognized. When the brain of an animal is examined and Negri bodies are found, the evidence is considered positive and a diagnosis of rabies is made. At the Georgia Pasteur Institute, within the last eighteen months, the author has demonstrated Negri bodies in forty-two dogs and three cats, and in every instance the rabbits inoculated died of typical rabies. In three cases where the inoculation test resulted positively, no bodies were found, though only the hippocampus major was examined and the animals were killed in the first stages of the disease. In fifteen dogs and two cats proved not to be rabid, no such structures could be demonstrated.

Proper Management of Chronic Suppurative Inflammation of the Middle Ear.

DR. DUNBAR ROY, Atlanta, said there are two kinds of chronic discharges: (1) A catarrhal, mucoid secretion, free from odor, except when the ear has not been cleansed for some time, coming from the middle ear through a perforation in the drum, associated with the same kind of catarrhal secretion in the nose and naso-pharynx. This condition can nearly always be cured by local therapeutic measures directed to both the ear and the nasal mucous membrane. This form of middle ear discharge is frequently seen in children, especially those having adenoids in the nasa-pharynx, and in those recovering from measles and scarlet fever. Proper and thorough treatment of this form will effect a cure. Frequently the only thing necessary is the removal of the adenoids. However, if the condition is not treated, it will pass into the next form. (2) Discharge from the middle ear of a whitish, desquamated epithelium, with purulent fetid secretion, destruction of the drum membrane, and in many cases erosion and liquefaction of the auditory canal at the point where the drum should exist. This is the form usually designated as chronic.

The treatment of chronic suppurative otitis was divided into two heads: (1) Conservative, and (2) radical. In the performance of the radical operation on the middle ear, the occurrence of the following results should be considered and intelligently placed before the patient or his parents before the same is undertaken: (1) Injury to the facial nerve, with a consequent facial paralysis for a more or less definite time. (2) A loss in the amount of hearing power in that ear, as compared to that which existed before the operation. (3) A possibility that the discharge may not be entirely cured. (4) Injury to the sigmoid sinus, an accident not likely to happen to the careful operator. The technic of the operation was described.

DISCUSSION.

DR. C. L. WILLIAMS, Columbus, reported the case of a boy, 12 years of age, illustrating the fact that discharges from the ears ought not to be viewed lightly.

DR. R. B. RIDLEY, Atlanta, said the longer he practices and sees cases of chronic ear trouble, the more thoroughly is he impressed with the fact that the radical operation is the only treatment for chronic suppuration of the middle ear.

DR. L. AMSTER, Atlanta, said that often the physician should be censured for not paying early attention to these cases of ear discharge, which eventually develop into chronic middle ear trouble, especially after measles, scarlet fever, etc.

DR. J. L. HIERS, Savannah, denounced the insufflation of powders in these cases, as in his hands they have been more harmful than beneficial. The wet treatment, syringing with strong antiseptic solutions, is best suited to the individual case. He emphasized the importance of using the dry treatment and of packing the ear lightly with absorbent gauze, preferably bichlorid or iodoform gauze.

DR. HENRY R. SLACK, LaGrange, finds that the wet treatment is decidedly the best, especially if it has to be intrusted to a member of the family. In getting rid of granular conditions in the ear, he has frequently found nitrate of silver very efficacious.

Medicolegal

Physicians Prohibited Testifying to Paresis in Family.

The Court of Appeals of New York says that testimony was introduced *in re* Mary A. Myer's will tending to show that, at the time of the execution of the will, the testatrix was afflicted with paresis, which it was claimed deprived her of testamentary capacity. In order to supplement and support this evidence, two physicians were called as witnesses. One of them had been the medical adviser of the testatrix's brother, and the other of her mother. These witnesses testified that both the mother and brother of testatrix had been afflicted with what they termed "general paresis," that their knowledge of this condition was obtained while attending such persons in their professional capacity, and that such knowledge was necessary in order to treat them. The testimony was objected to as incompetent and privileged under section 834 of the New York Code of Civil Procedure, and the court holds that it was clearly within the provisions of said section, which prohibits a physician from disclosing "any information which he acquired in attending a patient, in a professional capacity, and which was necessary to enable him to act in that capacity."

By the express terms of section 836, the court goes on to say, the provisions of section 834 are made to apply to the "examination of any person as a witness." The fact that the testimony of these physicians related to patients who were not parties to the proceeding or interested therein, and who were, in fact, dead at that time, did not annul the prohibition of the statute. In Davis vs. Supreme Lodge, 165 N. Y. 159, the defense sought to prove the cause of death of two aunts of the deceased by the testimony of their attending physicians. The evidence was excluded, and this court upheld the ruling. Judge O'Brien, in writing for the court, said: "This court has held that the statements of the attending physician for the purpose of establishing the cause of death either of the insured himself or of his ancestors or their descendants, although not parties to nor beneficiaries under the contract, were not admissible. They are excluded, not only for the purpose of protecting parties from the disclosure of information imparted in the confidence that must necessarily exist between the physician and patient, but on grounds of public policy as well. The disclosure by a physician, whether voluntary or involuntary, of the secrets acquired by him while attending on a patient in his professional capacity, naturally shocks our sense of decency and propriety, and this is one reason why the law forbids it."

Besides, the court says that there was another equally potent reason why this evidence should not have been received. The case was barren of facts which tended to show that the paresis with which the mother and brother of the testatrix were said to have been afflicted was acquired by them under circumstances that would render it transmissible so as to taint the family blood. It is doubtless the general and well-established rule that, where the mental soundness of an individual is in question, the sanity of the blood relations in the ancestral line may be shown as tending to establish the fact in issue, but that rule does not permit indiscriminate and unexplained evidence of diseases afflicting such relations and affecting their mental faculties. There must be evidence tending to show at least that such diseases are hereditary or transmissible. It is a scientific fact of common knowledge that the transmissibility of the malady known as "general paresis" depends to a great extent on the conditions underlying the disease. The medical writers differ as to its cause or causes, but it seems to be conceded that the majority of cases result from syphilis, while in others it may be superinduced by various excesses or overexertions of the individuals afflicted. Whether the particular form of the disease from which the testatrix and her family suffered was of such a transmissible character that she might be said to have derived it from her ancestors could not be determined from the evidence in the record, and it was, therefore, difficult to see how the testimony of the physicians was really pertinent to the issue whether the testatrix was possessed of testamentary capacity.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Syphilis.

In speaking of the treatment of syphilis Campbell Williams, in the *Clinical Journal*, states that every method of administering mercury has its advantages and drawbacks.

The treatment of syphilis should not be made one of the rule-of-thumb order, as the dose required by one patient may be insufficient for another. and too much for a third person. Consequently the dose and preparation must be suitable to the patient in that it removes the symptoms and cures the patient. Irregularity in taking the mercury is one of the disadvantages of administration by the mouth. On the other hand, the overanxious patient may take more than double the dose prescribed and thus induce a stomatitis and diarrhea. In some instances, it matters not how small the dose may be nor the nature of the preparation, it can not be tolerated when taken by the mouth, as it produces griping and purging. In the majority of ordinary diarrheas the following combination is recommended:

℞.	Hydrarg. tannatis.....gr. iss	09
	Pulv. opii.....gr. 1/4-1/2	015-.03
	Ext. hematoxylin	
	Ext. gentianæ, āā.....gr. ss	03

M. Ft. pillula No. i. Sig.: One such pill three times a day. Or:

℞.	Hydrarg. gallatis.....gr. iss	09
	Pulv. opii.....gr. 1/4-1/2	015-.03
	Confectio, rosæ	
	Ext. hematoxylin, āā.....gr. 1/2	03

M. Ft. pil. No. i. Sig.: One such pill three times a day.

The astringency of the gallate in the foregoing combination not infrequently produces indigestion.

In a great many cases, according to Williams, all that may be necessary is to mask the gray powder as follows:

℞.	Hydrarg. cum creta.....gr. i	06
	Bismuthi carb.....gr. ii	12
	Pulv. opii.....gr. 1/4-1/2	015-.03
	Ext. hematoxylin.....gr. 1/2	03

M. Ft. pil. No. i. Sig.: One such pill three times a day.

One of the simple remedies recommended for combating the mercurial diarrhea is the administration of a raw egg, as it probably forms a non-irritating albuminate of mercury, and two or three eggs in the twenty-four hours, together with a discontinuance of the drug, causes the enteritis rapidly to subside. The diarrhea most frequently develops following the administration of the biniodid, subchlorid, yellow mercurous iodid or the green iodid. The condition of the teeth should be carefully observed in order to keep the gums in a healthy condition. One of the best methods for hardening the gums is to paint them night and morning with alcohol (90 per cent.); mouth washes of alum or myrrh are also of value. Poor patients who can not afford to buy the medicine may be in-

structed to rub a little alum into the gums once or twice daily. At any rate, the toothbrush must be used daily. The author recommends the following as a very efficacious mouth wash:

℞. Plumbi acetatis 3iiss 10
Pulv. alumin.....3v 20
Aquæ .....℥xvi 500

M. Dissolve the salts separately, mix, filter and add essence of peppermint one-half dram. Sig.: As a mouth wash four times a day.

In some cases chronic constipation may be present. In such instances it may be necessary to add extract of belladonna gr. 1/10 (.006), or aloin gr. 1/10 (.006), to each pill.

In patients who are run down or anemic and are in need of tonics, the following combination is recommended:

℞. Hydrarg. cum cretæ
Ferri reducti, āā.....gr. i .06
Quin. sulph.....gr. ss .03
Ext. nucis vomicæ
Pulv. opii, āā.....gr. 1/6 .01
Ext. gentianæ.....gr. 1/2 .03

M. Ft. pil. No. i. Sig.: One such pill three times a day.

When the treatment is meeting the requirements the patients increase in bodily weight, they experience no depressed feelings. It is the author's opinion that the iodids do not cure syphilis, but only clear up the symptoms, and unless mercury is administered in conjunction with the iodids or following them, relapses will surely occur. However, he recommends the following mixture in addition to the mercury in order to hasten the healing of the initial lesion and the reduction of enlarged lymphatic glands:

℞. Liq. hydrarg. perchlor (B. P.).....3i 4
Potassii iodidi.....gr. v-x .30-.65
Syr. zingiberis 3i 4
Aquæ chloroformi .....℥i 30

M. Sig.: At one dose, to be taken at bedtime in a glassful of water.

Donovan's solution (liquor arseni et hydrargyri iodidi) is a valuable preparation in some cases, but its great drawback is the bad effect produced on the stomach. The amount of arsenious iodid which is contained in the usual dose in some cases is sufficient to produce arsenical pigmentation when administered for a great length of time. The most speedy reaction, according to Williams, follows an intramuscular injection. The patient, however, may object to such a method, in which event the inunction may be employed. The advantages of administration by the mouth are that it is cheaper, more convenient and can be carried out by the patient. An overdose or an underdose can be corrected at will, and the combination changed from time to time to avoid any disturbance of the stomach. Another great advantage of which the author speaks is that the treatment can be carried out in privacy. He rather favors the inunction method of treatment, however, when it can be satisfactorily carried out by employing a professional rubber, as the patient is too apt to be superficial when he attempts to do his own rubbing, as it is tiresome work. The time should occupy a space of from 20 to 30 minutes of energetic massage properly to rub in one dram (4.00) of the ointment. Consequently this in addition to a preparatory steaming or hot bath requires an hour's time each day. The keynote to success in the treatment of syphilis is continuity of treatment until a cure has been effected. The condition of the skin must be observed to avoid a mercurial erythema or suppuration of the hair follicles.

Rectal Feeding.

In an abstract in the *British Med. Jour.*, Drs. Francis Boyd and Jean Robertson conclude by observation on six cases that rectal feeding is of low value. In the opinion of the authors it is hopeless to expect that a patient who is suffering from esophageal or pyloric obstruction can be improved in a nutritional way. As albumin is absorbed in such small amounts, they recommend the abandonment of nitrogenous substances and the substitution for them of the fats and carbohydrates. The best form of fat is the yolk of egg. If prepared fat is used it should be in a state of fine emulsion and of low melting point. Pure olive oil is recommended, a small quantity being emulsified and used to emulsify the entire amount. As a good nutrient enema the following combination is recommended by them:

℞. Yolk of eggs, two.
Dextrose .....℥ss 2
Sodii chloridi.....gr. viii .50
Lactis (pancreatized) .....℥x 300

M. Sig.: At one time as a nutrient enema one hour after cleansing the bowel by colonic flushing, by slowly siphoning it into the bowel by means of a soft rubber catheter.

An enema similar to the foregoing has an approximate caloric value of 300 heat units and thus, if given every six hours, the total heat units will reach 1,200, of which 500 heat units may be absorbed. They call attention to the fact that feeding by rectal enemata often causes pain in the stomach by exciting the flow of gastric juice, especially when gastric ulcer is present. In such instances, it is stated, the healing of the ulcer may be promoted by allowing the patient a small amount of milk by the mouth, which will combine with the acid thus secreted and protects the ulcer from its action. They arrive at the conclusions, therefore, that rectal feeding has a very limited field of usefulness and does not afford complete rest to the stomach.

Alkalies.

Brunton, in the *Practical Med. Series*, calls attention to the value of alkalies in the relief of pain, especially the pain of toothache. It is the presence of acid in the carious tooth that is the most potent factor in the production of toothache as demonstrated by the rapid disappearance of the pain almost immediately on the application of a solution of sodium bicarbonate. This method of treatment is also of value when there is general aching of the teeth due to retracted gums. He also calls attention to the benefit derived by the alkaline treatment in cases of furuncles accompanied by sharp, stinging pain. The theory is that the pain is due to diminished alkalinity of the blood, both in the general system and in the local area, consequently alkalies, both internally and externally, are advised. The same outline of treatment will hold good in some cases of neuralgia and other painful affections.

Cyclic Vomiting in Children.

In the treatment of cyclic or recurrent vomiting in children, LeRoy advises against the use of morphin. Lavage and colonic flushings have also been useless in his experience. He is of the opinion that the origin of the disease is in the small intestine and that therapeutic measures must be so directed. For this purpose he recommends the following outline of treatment:

℞. Pulv. aloes et myrrh.....3ii 8
Pulv. guaiaci 3iss 6
Pulv. capsici 3i 4
Mix and triturate in porcelain mortar and add:
Olei cinnamomi .....m. xxv 1.65

Ft. cap. No. xxv. Sig.: One capsule every four hours until bowels act.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York.

April 28.

1 *Etiology of Relapses in Syphilis. J. Neumann, Vienna, Austria.
2 Hepatic Insufficiency. A. C. Croftan, Chicago.
3 Office Treatment of Anal Fissure. S. G. Gant, New York.
4 *A Common Form of Insanity. C. A. Drew, Bridgewater, Mass.
5 Practical Management of Typhoid Fever. C. E. Nammack, New York.
6 *Early Diagnosis and Treatment of Puerperal Septic Diseases. S. Marx, New York.
7 *Determination of the Absence of Hydrochloric Acid by a Simple Stool Examination. A. F. Hess, New York.
8 Diabetes Mellitus in Children. H. R. Livengood, Elizabeth, N. J.
9 Muenster Am Stein. B. Fernow, New York.

1. Etiology of Relapses in Syphilis.—Neumann summarizes his paper as follows: The late syphilitic relapses, the relapse *in situ* as well as the metastatic relapse, have their origin in the microscopically demonstrable syphilitic products, including the syphilitic lymph glands, which persist after the dis-

appearance of the clinical manifestations. These may exist a very long time, even more than a decade. The complete elimination from the organism of all the germs of the disease as promptly as possible therefore follows as a fundamental indication in the treatment of syphilis.

4. **Common Form of Insanity.**—Drew discusses especially that type of insanity variously known as pubescent insanity, adolescent insanity, precocious dementia, primary dementia or dementia præcox. Drew believes in regard to treatment, that the only safe rule is to consider every case toxic, or due to some derangement of the physiologic functions of the body. The full confidence of the patient should be won, for then the troubled brain will be greatly relieved. Elimination should be encouraged. A brisk purge may be the best of all medicines at first. Home environment is often a great obstacle. Oxidation stands next in importance to elimination. All hypnotics should be avoided if possible. The treatment of each case must be considered separately, for its details will vary with each patient.

6. **Early Diagnosis and Treatment of Puerperal Septic Diseases.**—Marx maintains that practically all sepsis arising after labor gains its entrance from the so-called puerperal ulcers, whether they be situated at the vaginal outlet, their most frequent site, or on or within the cervix. Early recognition and treatment will cut short many a case of beginning sepsis that would otherwise develop into a dangerous and prolonged illness. All elevations of temperature, or an abnormally high pulse rate with or without fever, in the period of the puerperium should be considered with suspicion. In the case of evident ulcerative areas, which are limited to the lower genital tract, the interior of the uterus should under no condition be invaded by hand or instrument. Carbolic acid, in pure form, is the cauterant of choice because of its painlessness, its deep influence, and the ability to control its action with alcohol. In the case only of intrauterine sapremia is the exploration for retained products of conception justified.

7. **Determination of Absence of Hydrochloric Acid.**—Hess has found that by making use of the fact that connective tissue can be digested only by the gastric juice the lack of secretion of hydrochloric acid by the stomach can be determined by naked-eye inspection of the stools. The patient during three days is given a test diet, of which the chief requirement is that it shall contain one-fourth of a pound of chopped beef cooked so that it is still rare within. On carefully scrutinizing the finely divided stool under these conditions, if there is absence of hydrochloric acid secretion particles of undigested connective tissue will be recognizable. The author recommends the method of application in cases which the passage of the stomach tube would be inadvisable.

New York Medical Journal.

April 28.

10 *The Overtrained Nurse. W. G. Thompson, New York.
11 *The Trained Nurse and Surgery. R. Abbe, New York.
12 *Organization and Control of Training Schools. G. P. Ludlam, New York.
13 *What Nurses Should Be Taught. M. A. Samuel, New York.
14 Clinical Examination of the Stools. R. Weil, New York.
15 Diagnosis of Affections Characterized by Abdominal Pain. G. P. La Roque, Richmond, Va.
16 Clinical and Microscopical Variations of Chorioepithelioma from a Practical Standpoint. (Concluded). R. T. Frank, New York.
17 Roentgen Treatment of Some Non-malignant Superficial Lesions. C. L. Leonard, Philadelphia.

10. **The Over-Trained Nurse.**—Thompson claims that whatever shortcomings may be demonstrated in criticism of the present system of nurses training, the primary responsibility therefor belongs to the members of the medical profession, who, if they would devote as much time and thought to the problems of the training school curriculum, the relationship of the work of the nurses to that of the house staff in hospitals and similar matters, as they devote to other medical duties, would soon produce ideal results in a system which, despite its serious shortcomings, has proved of the greatest possible benefit ever since it was established. The medical profession should define emphatically and clearly the limitations of the nurse's sphere of work and study. Physicians connected with institutions fostering training schools should insist on representation on their boards of school management, not merely in an advisory but in a governmental capacity. The curriculum of every training school should be submitted for approval and adoption by the physicians associated with the government of the school. The period of work for the trained nurse's ordinary diploma should be two years, but subsequent training for a year or more should entitle the graduate nurse to an additional certificate. Hospitals should admit for brief periods of study (say six months) a class of trained attendants, who should be exercised in the care of ordinary cases of illness not involving special technical skill or extended experience, and who could, in serious cases, aid the trained nurse in the work, and during convalescence supplant her at less expense to the patient. Provision should be made for the study of the nursing of private patients prior to graduation.

11. **The Trained Nurse and Surgery.**—Abbe contends that the value of a trained nurse in surgical work is much more dependent on her personal qualities, her conduct, discipline and experience than on the elaborate study of technical matter which had better be left to the physician.

12. **Training Schools.**—Ludlam insists that the organization of the training school should be as a department in the hospital to which it belongs. It should be conducted by one who has marked executive and administrative ability, and who, while free to discharge the duties of her office without interference should, at the same time, be distinctly subordinate and amenable to the general executive authority of the hospital. There should be a closer relation between the school and the attending staff of the hospital, and the wards of the hospital should be in charge of capable, permanent head nurses.

13. **What Nurses Should be Taught.**—Samuel says that it is not too much education that is the fault, but a want of more thoroughness and system in all that pertains to a nurse's work. Nurses should receive elementary instruction in anatomy, physiology, hygiene, bacteriology, materia medica, domestic science, and the principles and practice of nursing. The nurse should know something of normal and pathologic urine, and should be taught the simple tests for albumin and sugar. In order that the laws of asepsis may be intelligently and conscientiously obeyed, a clear knowledge of the fundamental principles of bacteriology is absolutely essential. The crusade against tuberculosis further illustrates the importance of a knowledge of bacteriology. Nurses should also know something of the preparation of antitoxins, the cost, how and when administered, with the results to be desired, and the effects that may be anticipated. Massage is another strong point for a nurse. During her course of training she should also be given an opportunity for the development of executive ability. The daily use of the *x*-rays, for diagnosis or treatment, the wonderful revelations of the microscope and cystoscope, the very general use of intravenous saline infusion or hypodermoclysis, all make it very apparent that a nurse's education at present is a vastly different one from that received by her sister of ten or fifteen years ago.

Boston Medical and Surgical Journal.

April 19.

18 *Clinical and Anatomic Study of Resistant Forward Shoulders. G. W. Fitz, Boston.
19 Treatment of Autointoxication or autoinfection When They Are the Cause of Mental Disturbance. L. V. Briggs Boston. (To be continued.)
20 The Secret of the Mayos' Success. W. Bartlett, St. Louis.
21 A Fatal Case of Gastric Tetany. L. Davis, Boston.

April 26.

22 Significance of Jacksonian Epilepsy in Focal Diagnosis: Site and Nature of Lesions Causing This Form of Spasm. C. K. Mills, Philadelphia.
23 *An Operation for Cystocele. W. P. Graves, Boston.
24 Influence in Favor of Better Market Milk. R. A. Pearson, Ithaca, N. Y.
25 Treatment of Autointoxication or Autoinfection When They Are the Cause of Mental Disturbance. (To be continued). L. V. Briggs, Boston.

18. **Resistant Forward Shoulder.**—Fitz claims that the term round-shoulders is misleading. Forward shoulders (postural resistance) is far more definite, but should be accompanied by a definite statement of the cause of resistance. Resistant forward shoulders are symptomatic of anatomic conditions. The commonly accepted statement that tight pectoral muscles

are the cause is not tenable. The most common factor in forward shoulders is the tightness of the serratus muscle. An occasional factor usually associated in extreme cases with the above is shortness of the coraco-clavicular and acromio-clavicular ligaments whereby the union of clavicle and scapula is made so rigid as to prevent full backward and downward movements of the shoulder. Systematic examination of forward shoulder cases is necessary in order to identify the definite causes of restriction of motion. The early recognition and treatment of pronounced cases is important since self-correction is unusual and the reflex moral effect is serious. When stretching and muscular development fail, it is possible to incise the tight coraco-clavicular ligaments, and thus to free the shoulder from rigid interference. The term "round shoulders" is misleading. Forward shoulders (postural or resistant) is far more definite, but should be accompanied by a definite statement of the cause of resistance.

23. **Operation for Cystocele.**—The operation described by Graves is an anterior colporrhaphy, and depends for its success on the presence of pubic attachments. Its essential principle is that of any anterior denudation which seeks support from the sides, but has in addition the purpose of gathering up all the slack tissue so as to avoid protrusions and to leave the anterior wall perfectly smooth. The most important protrusion to reduce is the somewhat loosely called urethrocele. Graves insists that this should always be reduced even in cases in which cystocele does not exist above it, as it is sure in time to stretch out the external portion of the repaired perineum. No particular originality is claimed in this operation as it combines and modifies principles long ago described by Dr. Emmet. [The operation is described in detail, but because of frequent references to diagrams and drawings which accompany the text it is impossible to abstract satisfactorily that portion of the paper.—ED.]

Lancet-Clinic, Cincinnati, Ohio.

April 28.

26 Traumatic Brain Injuries. R. H. Moss, Niagara, Ky.
27 Chronic Ulcers. L. Heimann, Evansville, Ind.

University of Pennsylvania Medical Bulletin, Philadelphia.

March.

28 *Histologic Changes in Uterine Myomata in Their Transformation Into Fibroid Tumors. E. S. Allen and C. C. Corson, Philadelphia.
29 Precocious Diagnosis. E. Martin, Philadelphia.
30 Study of Two Cases of Syringomyelia, with Necropsy. H. S. Hutchinson, Philadelphia.
31 Hysteria Simulating Fracture of the Spine. F. H. Klaer, Philadelphia.

28. **Histologic Changes in Uterine Myomata.**—Allen thinks that in uterine myomata there is always a certain amount of elastic tissue, either in normal amounts and relations in the blood-vessel walls or sometimes in the tumor tissue, where it is distributed among the bundles of muscle along with fibrous tissue of such septa and muscular investments. Vascular changes of the type of fibrous and elastic hyperplasias are common in such tumors, leading to the thickening of their coats and to eventual obliteration of vessels, and to increase in the connective tissue framework of the tumor in the vicinity of the affected vessels. Probably as a result of nutritive disturbances brought about by such vascular changes this excess of the elastic tissue in the surrounding tissues does not maintain an integral condition, but deteriorates and eventually disappears. Probably dependent on the same nutritive disturbances the original muscular elements of the tumor also atrophy, degenerate and necrose, and finally disappear as muscle spindles, although there is some evidence that the cell wall (corresponding to the sarcolemma of the striated type of muscle) may remain and contribute in a passive manner to the fibrillar material of the final fibroid tissue. The character of the tissue and the relative paucity of fiber-forming young elements is consistent with the idea that the fibrillar tissue of the final uterine fibroid is in a large part not true fibrous connective tissue, and that the general process of transformation is not a progressive but a retrogressive one

Archives of Pediatrics, New York.

April.

32 Case of Uncinariasis in a Child. S. S. Adams, Washington, D. C.
33 *Costal Synostosis About Drainage Tubes in Empyemia. F. Huber, New York.
34 Necessary Requirements for Intelligent Infant Feeding, and a Method of Reducing the Complexity of the Mathematical Calculations. C. H. Dunn, Boston.
35 The Diathetic Child. L. Kerr, Brooklyn, N. Y.
36 Case of Porencephalus. G. N. Acker, Washington, D. C.

33. **Costal Synostosis About Drainage Tubes.**—Huber reports 4 cases of chronic pleural fistula in which he operated and from which he removed costal synostosis which had formed about the drainage tube.

Detroit Medical Journal.

April.

37 *Intermittent Claudication. J. Flintermann, Detroit.
38 A Few Important Points on the Causes and Prevention of Deafness. G. W. Spohn, Elkhart.
39 Osteopathy. W. E. Blodgett, Detroit.
40 Progress of Internal Medicine. V. C. Vaughan, Detroit.

37. **Intermittent Claudication.**—For years Fintermann's patient complained of weakness and pain in the lower extremities, first in the left and then in the right. The pain and weakness were not constant, but were the most noticed after overexertion, either standing or walking. After rest, the pain and weakness would disappear for some time, always coming back after overexertion, and the intervals between those attacks would become shorter, so that finally, even when resting, the pain and weakness would not leave him. There were signs of imperfect nutrition of the parts, the foot would become stiff and cold, and signs of insufficient blood supply would manifest themselves. Impairment of motion and sensation would become very intense, finally developing to such a condition that nutrition became so insufficient that gangrene at the most peripheral parts developed, finally necessitating amputation below the knee. After years of suffering and insufficient nutrition, a condition developed showing a change in the tissue of the blood vessels, finally reaching such a state that pulsation could not be felt in some of the main arteries of the extremities. The examination of the blood vessels after the amputation showed an endarteritis obliterans.

The Journal of the Minnesota Medical Association and Northwestern Lancet, Minneapolis.

April 15.

41 *Surgical Treatment of Goiter. C. H. Mayo, Rochester.
42 *When Not to Operate for Appendicitis. J. E. Moore, Minneapolis.
43 *Case of Typhoid Fever, with Comment on the Relational Pathology of the Disease. H. A. Tomlinson, St. Peter.
44 Intestinal Tuberculosis, with Reference to Resulting Stenosis. R. E. Farr, Minneapolis.

41.—See abstract in THE JOURNAL, April 7, 1906, page 1053.

42.—See THE JOURNAL, June 24, 1905, page 1976.

43. **Case of Typhoid Fever.**—The points of special interest in the case reported by Tomlinson were the involvement of the general nervous system, the nature of the convulsion, the relatively greater severity of the illness in a relapse that occurred, as well as the fact that in its general manifestations the case closely resembled the clinical picture of typhoid fever in the insane.

The Therapeutic Gazette, Detroit.

April 15.

45 *Pulmonary Edema. W. M. L. Coplin, Philadelphia.
46 *The Menopause in Fable and in Fact. E. Reynolds, Boston.
47 *Practical Points in the Dietetic Management of Diabetes. A. C. Croftan, Chicago.
48 Quinin in Malarial Hematuria. H. C. Buck, Friar's Point, Miss.
49 Spinal Anesthesia, with Especial Reference to the Use of Stovaine. W. W. Babcock, Philadelphia.
50 Adrenalin and Chloretone in the Treatment of Chronic Rhinitis and Pharyngitis. J. C. Warbrick, Chicago.

45. **Pulmonary Edema.**—The multiplicity of affections with which pulmonary edema may be associated is well shown by the analysis of the 405 cases included in Coplin's report. There was a coexisting congestion of the lung in 235, tuberculosis in 69, croupous pneumonia in 38, atelectasis in 12, infarction in 12, gangrene in 5, bronchiectasis in 3, chronic pleurisy in 120, acute pleurisy in 23, and hydrothorax in 34. Bronchitis could be recognized in only 12 cases. In 350 of the cases associated cardiac lesions were also present; hypertrophy in 108, dilatation in 62, chronic endocarditis in 96, acute endocarditis in 7, myocarditis in 76, and in one the heart was malformed. In 35 cases there was a pericarditis, and in 6 a hydro-

pericardium. In 140 of the cases arteriosclerosis was sufficiently marked to attract attention. Renal lesions were present in 333 cases, chronic parenchymatous nephritis in 156, chronic interstitial nephritis in 126, acute diffuse nephritis in 42, and in 9 nephritis was observed, although the form is not stated. Hydronephrosis was found in 7 additional cases. The liver was congested in 150 cases and cirrhotic in 40. Although intracranial lesions are often named as important causes of pulmonary edema, the cases therein studied offer no convincing evidence of an intimate association between the pulmonary lesion and meningeal or cerebral disturbances. In 29 cases there was a cerebral edema, apparently due to the same causes as the pulmonary lesion. Meningitis was also present in 20 cases, and in most of these evidences of sepsis are recorded. Cerebral hemorrhage was found in 7 cases and meningeal hemorrhage in 6. In 50 patients colitis, either dysenteric or probably uremic, was observed. Ascites was a complication in but 25. With regard to the sex, 261 were males and 139 were females; in 5 cases the sex was not stated.

46. **Menopause in Fable and Fact.**—Reynolds claims that beyond slight disturbances there should be no symptoms in the normal menopause. Every definite symptom of pelvic origin which appears at the menopause has a given lesion to account for it; that is, with perfect pelvic organs the years of the menopause will pass pleasantly by, with little or nothing to direct the woman's attention to it save the cessation of the catamenia. He who has learned to search out the cause and effect is often horrified at the amount of unrelieved suffering which can be traced to the dogma so generally accepted by the laity, and by too many members of the profession, that any nervous or circulatory disturbance, or, indeed, any chronic ailment whatsoever that occurs between 35 and 50 may safely be attributed to the menopause. Reynolds urges that it must be insisted on that relatively slight lesions may at this period initiate processes of real importance, or may at least cause symptoms of importance, which usually take the form either of greatly increased nervousness, pelvic pressure or bearing-down sensations, actual pelvic pain, or irregular or increased flow. All these are abnormal, can in most cases be referred to a definite pelvic cause, and should always attract attention because usually they can be relieved by an intelligent understanding of the class of lesions to which each class of symptoms may be referred.

47. **Dietetic Management of Diabetes.**—Four points in particular as regarded by Croftan as of a special practical value as they may guide the practitioner away from the paths of routine and still enable him to remain within the limits of safety. The first of these points is the danger of too much meat. Meat actually leads to sugar excretion in diabetes, and excessive meat feeding favors the development of acidosis. Withdrawal or reduction of meat appreciably increases the tolerance for carbohydrates, even in mild cases. The second point is the danger of too little carbohydrate which results in acidosis and, finally, coma. It is important to determine the tolerance or the so-called boundary of assimilation for carbohydrates in each case of diabetes. Third, a diabetic should receive the largest amount of fat in his food that he can possibly stand. Not only does fat spare the tissue albumins, but its caloric value is so high that it aids most materially in maintaining nutritive equilibrium. Fourth, the value of the rice, potato, milk and oatmeal cures. Croftan's experience has been limited to the oatmeal cure. He claims that if the rule is observed to stop the oatmeal cure if good effects are not seen within three days, the number of bad results will be reduced to insignificant figures. The best results are obtained in juvenile diabetics, and he urges that no case of juvenile or adolescent diabetes should be deprived of the benefit of an oatmeal cure. The practical application of the quantitative method is described in full.

The Journal of Medical Research, Boston.

April.

51 Optical Advantages of the Ultra-Violet Microscope. W. C. Sabine, Boston.
52 Ultra-Violet Photomicrography. H. C. Ernst and S. B. Wolbach, Boston.
53 Rapid Diagnosis of Rabies. L. Frothingham, Boston.
54 *Pathologic Calcification. H. G. Wells, Chicago.
55 Stable and Detachable Agglutinogen of Typhoid Bacilli. B. H. Buxton and J. C. Torrey, Ithaca, N. Y.
56 Further Study of the Experimental Production of Liver Necroses by the Injection of Hemagglutinative Sera. R. M. Pearce, Albany, N. Y.
57 Influence of Glycerin in Differentiating Certain Bacteria. E. Andrade, Jacksonville, Fla.

54. **Pathologic Calcification.**—Collecting the evidence obtained from both the literature and from experiments, Wells deduces therefrom the following facts: 1. The composition of the inorganic salts in calcified areas in the body seems to be practically the same, if not identical, whether the salts are laid down under normal conditions (ossification) or under pathologic conditions. (This is shown by a table giving the proportion of inorganic salts found by analysis in normal bone, and the proportion found in calcified materials.) 2. No evidence has been obtained by direct chemical analysis that calcium soaps form a constant and important stage in the process of calcification of tuberculous areas and thrombi. That the formation of calcium soaps is an essential process in pathologic calcification seems, however, highly improbable. 3. Cartilage, at least the epiphyseal cartilage of long bones, shows a striking tendency to accumulate calcium salts, even when the cells have been killed by heat. On the other hand, the presence of large amounts of nucleoproteids (spleen and thymus) seems to lead to no specially rapid impregnation with calcium, as compared with tissue poor in nucleoproteid (muscle). This agrees with the great tendency of degenerated connective tissue to calcify, in spite of its extreme paucity in nucleoproteid, an observation which speaks strongly against phosphoric acid, arising from decomposed nucleoproteids, as an important binder of calcium in pathologic calcification, attractive as this hypothesis is. Wells thinks that the facts at hand are not sufficient to warrant theorization, on the chemic and physiologic processes of calcification.

Colorado Medicine, Denver.

April.

58 Dunbar Treatment of Hay Fever. R. Levy, Denver.
59 Immunity. W. C. Mitchell, Denver.

The Physician and Surgeon, Detroit and Ann Arbor, Mich.

February.

60 Life and Character of Moses Gunn. C. B. G. de Nancrede, Ann Arbor.
61 Borderland Cases of Insanity. I. H. Neff, Pontiac, Mich.

Northwest Medicine, Seattle, Wash.

April.

62 Significance of the Pupillary Reaction During Anesthesia. E. R. Northrop, Spokane.
63 Significance of Symptoms in Upper Abdomen. H. M. Read, Seattle.
64 Significance of Abdominal Tenderness. P. W. Willis, Seattle.
65 Abdominal Pain Due to Extra-Abdominal Disease. J. B. McNerthney, Tacoma.
66 Methods of Examination in Diseases of the Stomach. H. S. Martin, Spokane.

Fort Wayne Medical Journal-Magazine.

March.

67 First Principles of Medicine. W. P. Whery, Ft. Wayne.
68 Chronic Pancreatic Disease. B. W. Rhamy, Ft. Wayne.
69 Transition of Medicine. H. G. Nierman, Ft. Wayne.

New York State Journal of Medicine.

March.

70 President's Address, Medical Society of the State of New York. J. D. Bryant, New York.
71 Plea of the Patient. G. Cleveland, Princeton, N. J.
72 Advance in Medical Knowledge. M. L. Bruce, New York.
73 The State and the Doctor. St. C. McKelway, Brooklyn.
74 Address on Organization. L. S. McMurtry, Louisville, Ky.
75 Progress in Medicine. W. W. Keen, Philadelphia.
76 History of Medicine in the State of New York for the last Hundred Years. S. B. Ward, Albany.
77 Progress in Surgery in the Nineteenth Century. R. Park, Buffalo.
78 Typhoid Fever. L. Coville, Ithaca.
79 Toxic Arthritis. H. A. Fairbairn, Brooklyn.
80 Results of the Sanatorium Treatment of Pulmonary Tuberculosis. J. H. Pryor, Saranac Lake, N .Y.
81 History of the Medical Society of the State of New York. J. J. Walsh, New York.

The Quarterly Journal of Inebriety, Boston.

Spring Number, 1906.

82 Alcoholic Poisoning and Degeneration. G. Bunge, Switzerland.
83 Recognition of Drug Addictions in Life Insurance. T. D. Crothers, Hartford, Conn.

84 Nicotine Question in Smoking. Stranch, Vienna.
85 Alcoholism, Speed Mania and Objectless Activities. W. L. Howard, Baltimore.
86 Alcohol in Medical Practice. J. H. Kellogg, Battle Creek, Mich.
87 Predisposing and Acquired Characteristic of the Alcohol and Drug Habitué. C. D. Mills, Marysville, Ohio.
88 Wine and the Poets. J. Madden, Portland, Oregon.

Pacific Medical Journal, San Francisco.
April.

89 Influence of the Mind Over the Functions of the Body. E. W. King, San Francisco.
90 A Sociologic Problem of the Day, from a Medical Standpoint. C. W. Kellogg, Bakersfield, Cal.

Virginia Medical Semi-Monthly, Richmond.
April 13.

91 Diagnosis of Inflammatory and Ulcerative Lesions of the Penis and Scrotum. G. P. LaRoque, Richmond.
92 Extrauterine Pregnancy—Its Diagnosis and Treatment. J. N. Lewis, Roanoke.
93 Influenza. E. A. Long, Johnson City, Tenn.
94 Principles of Surgery. S. McGuire, Richmond.

The American Practitioner and News, Louisville.
April.

95 Fads of the Specialists. S. G. Dabney, Louisville.
96 Sarcoma of the Choroid. M. F. Coomes, Louisville.
97 Conjunctivitis. G. A. Robertson, Louisville.
98 Heredity, Training and Environment. B. F. Eager, Louisville.

Cleveland Medical Journal.
April.

99 Pathology of Tuberculosis of the Kidney. H. J. Whitacre, Cincinnati.
100 Hyperemia as a Therapeutic Agent. G. I. Bauman, Cleveland.
101 Case of Puerperal Tetanus. J. J. Thomas, Cleveland.

Chicago Medical Recorder.
April.

102 Farewell Address of Dr. David Doherty, Chicago, at the Banquet Given Him by the Chicago Medical Society, Feb. 17, 1906, on the Occasion of His Departure for the Philippines.
103 Acute Mastoid Abscess. F. Allport, Chicago.
104 Atrophy and the Adduction Deformity of Hip Disease. W. Blanchard, Chicago.
105 Tuberculosis of the Hip—Etiology and Pathology. E. W. Ryerson, Chicago.
106 Intravenous Injections of Mercury in Syphilis. W. F. Bernart, Chicago.
107 Chronic Intestinal Stenosis. J. R. Ballenger, Chicago.

Columbus Medical Journal.
April.

108 Evils of Mouth Breathing. C. P. Linhart, Columbus.
109 The Medical College Curriculum. W. A. Dickey, Toledo.
110 Id. J. U. Lloyd, Cincinnati.
111 Relation of the Literary and Medical Colleges. R. P. Daniells, Toledo.
112 What Subjects and How Much Work in Each Should Be Required of a Graduate of a Literary College to Gain a Year's Advanced Standing in a Medical College of this State. C. F. Clark, Columbus.

The Ohio State Medical Journal, Columbus.
April 15.

113 Localization and Removal of Foreign Bodies. C. F. Bowen, Columbus.
114 Pernicious Anemia. G. F. Zinninger, Canton.
115 Some Influences that Determine Age. W. C. Bunce, Oberlin.
116 The New Hospital a Necessity. A. B. Isham, Cincinnati.
117 Cases Illustrating the Difficulties in the Diagnosis of Smallpox as Against Chicken Pox. T. C. Miller, Massillon.

International Clinics, Vol. IV (Fifteenth Series), Philadelphia.

118 Treatment of Psoriasis. W. S. Gotthelf, New York.
119 Therapeutic Value and the Mode of Action of Physiologic Saline Solutions. Hallion and M. Carrion, Paris.
120 Treatment of Some Common Gastric Disorders. N. B. Gwyn, Philadelphia.
121 Internal Use of Carbolic Acid. M. Benedict, Vienna.
122 Nervous Disorders in Which Psychotherapy May Prove of Value. G. Ballet, Paris.
123 Empyema. J. N. Hall, Denver.
124 Value of Post-tussive Suction as a Sign of Excavation in the Lung. D. B. King, Bansshory, England.
125 A Method of Abdominal Palpation. A. E. Thayer, Galveston, Texas.
126 Later Stages of Cirrhosis of the Liver. D. Duckworth, London.
127 Thyroid Gland: Its Anomalies of Secretion and Their Manifestations and Treatment. T. R. Brown, Baltimore.
128 Symptomatology and Diagnosis of Malta Fever. C. F. Craig, San Francisco.
129 Results of Operations, Such as Gastroenterostomy, Pyloroplasty, etc., in Treatment of Diseases of the Stomach. J. B. Deaver, Philadelphia.
130 Phlebitis, Thrombosis, and Embolism Following Abdominal and Pelvic Operations. W. A. Edwards, Philadelphia.
131 Study of the Clinical Course of Joint Tuberculosis by Means of the X-Rays. A. H. Freiberg, Cincinnati.
132 Postoperative Surgical Neurasthenia. E. M. Corner, London.
133 Etiology and Early Diagnosis of Acute Peritonitis. B. T. Tilton, New York.
134 Cysts of the Lesser Peritoneal Cavity. J. F. Binnie, Kansas City.
135 Diagnosis of Surgical Diseases of Kidney. J. G. Sherrill, Louisville.
136 Study of Ectopic Pregnancy. T. A. Ashby, Baltimore.
137 Sixty Cases of Extrauterine Pregnancy. F. S. Newell, Boston.
138 Pelvic Hematocele and Hematoma. C. Lockyer, London.
139 Medical Treatment of the Menopause. R. W. Wilcox, New York.
140 Syphilitic Neuritis of the Optic Nerve with Impending Blindness Successfully Treated by Calomel Injections. L. Jullien, Paris.
141 An Experimental Study of the Effects of Roentgen Rays on the Blood-Forming Organs, with Special Reference to the Treatment of Leukemia. A. S. Warthin, Ann Arbor.
142 Eosinophilia. C. E. Simon, Baltimore.

International Clinics, Vol. I (Sixteenth Series), Philadelphia.

143 Medical Treatment of Exophthalmic Goiter. J. Tyson, Philadelphia.
144 Treatment of Gastroptosis. A. P. Francine, Philadelphia.
145 Coughing and Its Relation to Treatment. J. M. French, Cincinnati.
146 Dechloridation Treatment in Diseases of the Heart. E. Barie, Paris.
147 Indications for, and the Method of Performing, Venesection. J. W. Wainwright, New York.
148 Diagnosis and Treatment of Membranous Tonsillitis. L. S. Somers, Philadelphia.
149 Position and Size of the Heart in Advanced Mitral Stenosis. M. H. Fussell, Philadelphia.
150 Origin and Preventive Treatment of Oxalic Acid Deposits in the Urine. G. Klemperer, Berlin, Germany.
151 Death and Blindness as a Result of Poisoning by Methyl, or Wood Alcohol and Its Various Preparations. C. A. Wood, Chicago.
152 Method of Lengthening the Achilles Tendon and Other Tendons. R. A. Hibbs, New York.
153 Gonorrheal Synovitis; Carcinoma of the Pyloric End of the Stomach. N. Senn, Chicago.
154 Effects of Quiet Renal Calculus. W. H. Battle, London.
155 Treatment of Carcinoma of the Tongue. J. L. Faure, Paris.
156 Importance of a Study of the Pulse in Surgical Disorders, with Special Reference to Its Bearing on Diagnosis, Prognosis and Treatment. C. G. Cumston, Boston.
157 Causation and Treatment of Eclampsia, with Special Reference to the Methods of Accomplishing Rapid Delivery of the Fetus. J. B. De Lee, Chicago.
158 Chorioepithelioma Malignum in a Pregnant Uterus; Rupture of the Uterus; Acute Hemorrhage. E. B. Young, Boston.
159 Eosinophilia. C. E. Simon, Baltimore.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal.
April 14.

1 *Treatment of Taenia. J. K. Fowler.
2 *Psoriasis and Its Treatment. P. S. Abraham.
3 Eye Accidents and Compensation. S. Snell.
4 Important Symptoms in Diseases of the Eye. A. M. Ramsay.
5 Tabes Dorsalis. D. Ferrier.

1. **Treatment of Taenia.**—The method of treatment employed by Fowler is described as follows: 1. The patient is kept in bed. 2. For two or three days the diet is restricted to beef tea, about two pints, two rusks, and four ounces of port wine daily. During this time the patient is given gr. ii of cascara sagrada three times daily. About 5 a. m. on the fourth day the patient is given ʒi of compound infusion of senna, and at 9 a. m. a capsule containing m. xv of extract of male fern. The dose of male fern is repeated at 9:15, 9:30 and 9:45. At 11 a. m. another ounce of the senna is given. If the worm has not been expelled with the head by 1 p. m. a second course of treatment is given with the male fern, followed in an hour by a purgative. If the head is not found a third course is administered. Fowler says it is not advisable to continue the treatment beyond this without an interval of a day, as the patient may be somewhat exhausted.

2. **Treatment of Psoriasis.**—Abraham does not believe that there is any one drug administered internally which can be regarded as a specific in psoriasis. In his experience magnesium sulphate with a little iron and some bitter tonic is often useful in regulating and in improving the general nutrition, and in every case in which there is the least suspicion of an excess of uric acid in the system he gives salicylates, salicin and alkalies. As regards external remedies, his usual plan is to order a thorough soaking, for at least ten minutes, in a weak tar bath every day, to be followed by a copious inunction with the following ointment:

℞. Creolini	ʒss	2
Acidi salicylici Hydrarg. ammon., ää	gr. x	6
Lanolini et Vasolini ad	ʒi	30

Abraham sometimes adds two or three drams of soft soap, and occasionally 15 grains of pure precipitated sulphur. Most cases yield to this treatment in a few weeks, but when progress is slow he adds to this ointment 10 or 20 grains of chrysarobin. For psoriasis of the scalp his routine ointment, for a few weeks, is:

℞. Hydrarg. ammon.	℥i	4
Saponis mollis		
Vasolini	℥i	30

With the addition sometimes of resorcin or some tarry oil.

The Lancet, London.

April 14.

6 Tabes Dorsalis. D. Ferrier.
7 *Appendicostomy and Appendicectomy as a Substitute for Cecal Colotomy, and in Treatment of Typhoid. C. B. Keetley.
8 Points in the Treatment of Chronic Bright's Disease. S. West.
9 *Management of the Third Stage of Labor. G. F. Blacker.
10 Influence of the Nervous System and External Temperature on Certain Circulatory Changes Concerned in the Etiology of Catarrh, Ulcer, and Simple Dilatation of the Stomach, with Suggestions as to Treatment. A. Mantle.
11 Case of Glioma of the Pons. G. Schorstein and A. J. Walton.
12 *Relationship Between Exophthalmic Goiter and Acute Rheumatism. W. E. Robinson.
13 Two Cases of Otitic Lateral Sinus Phlebitis, one Complicated with Cerebellar Abscess. D. Grant.
14 The Turk's and Caicos Islands as a Resort for Cases of Pulmonary Tuberculosis. G. S. S. Hirst.

7. **Appendicostomy.**—Keetley reports a case in which he used the appendix for giving egress to feces when it would otherwise have been necessary to perform a cecal colotomy. He also discusses whether or not typhoid patients should be operated on before perforation and bleeding occur. This could be done either by performing an enterostomy or appendicostomy which would permit of flushing the ileum with a warm weak saline or a silver solution.

9. **Management of Third Stage of Labor.**—Blacker summarizes his paper as follows:

1. The third stage of labor is best treated by the employment of the Dublin or Credé's method of expressing the placenta after a sufficient interval of time has been allowed to elapse for the placenta to become separated from the uterine wall. 2. The tendency to shorten this interval of time to much less than the thirty minutes recommended by Credé is attended with considerable risk to the mother. 3. It is, however, best to be guided by careful observation of the changes in the uterus indicating that separation of the placenta has or has not taken place rather than by any arbitrary period of time. 4. After the change in the level of the fundus of the uterus takes place, indicating that the separation of the placenta has occurred, from ten to fifteen minutes should still be allowed to elapse so as to diminish the risk of the retention of any portion of the placenta or membranes. 5. If there is reason to suppose that the placenta is adherent and a trial of expression fails no harm will result to the mother in the absence of any urgent indications if a period of from one and a half to two hours is spent in waiting for its spontaneous separation and expulsion. 6. Manual removal of the placenta should never be performed if it can be avoided, and it should not be practiced in the absence of severe hemorrhage or any other indication for its immediate performance until from one and a half to two hours have elapsed since the birth of the child, and then only if further attempts at expression fail. 7. Retained portions of placenta and membranes should be removed at once, unless in the case of the membranes they are of quite small size. 8. In performing this operation it is a wise precaution to wear sterilized rubber gloves.

12. **Exophthalmic Goiter and Rheumatism.**—The possible relationship betwen these two affections was brought to Robinson's attention by the occurrence in one of his patients of a definite attack of rheumatism about six months after the first signs of Grave's disease. The case proved somewhat intractable to treatment, but the acute rheumatism yielded very readily to salicylate of sodium, and at the same time there was very pronounced diminution of all the signs of the exophthalmic goiter, notably of the swelling of the thyroid gland, the exophthalmos and the tremors. The pulse rate continued to be higher than normal, but this also was considerably lessened.

The Practitioner, London.

April.

15 Dietetics. D. N. Paton.
16 *General Considerations on Therapeutic Uses on Diet. R. Hutchison.
17 *Effect of Diet on Chronic Heart Disease and Diseases of the Circulatory System. D. Duckworth.
18 Diet in Acute Illness. G. N. Pitt.
19 *Diet in Renal Disease. J. R. Bradford.
20 Dietetic Treatment of Diabetes Mellitus. R. T. Williamson.
21 Diet in Gout, Rheumatism, and Allied Conditions. A. P. Luff.
22 Dietetic Treatment of Obesity. W. H. Allchin.
23 Dietetics in Consumption and Other Wasting Diseases. H. Mackenzie.
24 Dietetic Treatment in Epilepsy. W. A. Turner.
25 Dietetic Treatment of Dyspepsia and Diseases of the Stomach. S. H. Habershon.
26 Diet in Intestinal Disorders and Diseases. G. A. Sutherland.
27 Diet in Skin Diseases. M. Morris.
28 *Diet in the Tropics. W. J. Simpson.
29 By-paths of Medicine; the Method of Cornaro.

16. **Therapeutic Uses of Diet.**—Hutchison sketches briefly the general uses and limitations of dietetic means in the cure of disease, and indicates the principles which guide their application. He lays down the following general rules which should be borne in mind when drawing up any plan of dietetic treatment: 1. When prescribing a diet in a case of local disease one must take care not to sacrifice the whole to the part. 2. No article of food should be forbidden unless there is a good reason for doing so. 3. In acute disease one should recommend; in chronic disease forbid. 4. Before recommending any article, find out whether the patient likes it, and whether it agrees with him. 5. If an article disagrees, it is generally better to reduce its amount in the diet than to cut it off altogether. 6. General and proposed changes of diet should be made gradually. 7. Always bear in mind the following aphorisms of three great physicians: "Such food as is the most grateful, though not so wholesome, is to be preferred to that which is better though distasteful."—Hippocrates. "More importance is to be attached to the desires and feelings of the patient than to doubtful and fallacious rules of medical art."—Sydenham. "Physicians appear to be too strict and particular in the rules of diet and regimen; too anxious attention to those rules hath often hurt those who were well, and added unnecessarily to the distress of the sick."—Heberden.

17. **Diet and Heart Disease.**—Duckworth states that plain food of all varieties, plainly cooked, taken in regular meals, without any overloading, or excess in solids or liquids, is to be enjoined. Gastric, or intestinal, dyspepsia is naturally inconsistent with favorable nutrition of the body generally, and of the myocardium in particular. In the young, so long as sufficient food is taken, there is no need to encourage excess, or to feed habitually between meals. Strong meat soups and essences are to be avoided, and tea sparingly taken by both young and older patients. As a rule, all alcoholic drinks are best omitted from the diet, and tobacco smoking is to be abjured, or very slightly indulged in, and then only after a meal. If tea or tobacco induces palpitation, neither must be used. If these measures are imperative in the case of simple myo-hypertrophy of the heart, they are even more so when failure of muscular efficiency shows itself by the well-recognized symptoms of dyspnea, palpitation and oppression of the chest.

If, as a result of this failure, there is dropsy, the diet has to be modified. It is necessary to feed such patients with small meals, and to limit the amount of fluids of all kinds. It is also desirable to make the principal meal soon after midday, and to enjoin a lighter one in the evening; to avoid giving, at any one time together, proteids and carbohydrates. The choice of food is hardly important so long as it is simply prepared and readily digested. Predigested food is not so necessary as is commonly believed, but it may be needed in some cases. Soups and milk, therefore, are unwisely recommended in most instances, as tending to flatulence and discomfort in bedridden or sedentary conditions. Coffee with an equal part of milk is often a good cardiac stimulant, and may be better digested than tea as commonly made. A small cupful of freshly made China tea, with cream, may be given in the morning, and as much cocoa with milk later in the day. Small amounts of water or unaërated, indifferent spa water, may be given between meals. In the later stages of progressive heart failure with tumidity of the liver and dropsy, predigested foods may be employed; milk and barley water with citrate of soda and Koumyss may prove sufficient nutriment till some measure of appetite returns. Small quantities of iced champagne may prove useful. The question of withholding all salt from the food is worthy of consideration as soon as dropsical symptoms appear, and this plan may be tried.

19. **Diet in Renal Disease.**—Bradford says that a rigid system of dieting is suitable neither for all kidney diseases nor for all stages of the same disease, and attention in determining the diet should not be directed exclusively to the condition of the urine, but other factors, such as the general nutrition of the patient, the presence or absence of dropsy, the degree

of cardiovascular degeneration present, and the presence or absence of uremia, are all factors that should be taken into consideration. In cases of true acute nephritis associated with considerable suppression of the urine, and in which the eliminating functions of the kidney are most seriously compromised, the diet should be reduced to the greatest extent possible, and in some cases of very acute nephritis it may be advisable to withhold all food for a few days. In most cases such starvation treatment is not necessary, but it is still essential to give as little food as possible, and it may be as well to restrict this to one or one and a half pints of milk, moderately diluted, in the twenty-four hours.

All meat extracts and soups should be avoided throughout the illness, as their nutritive value is low, and they contain numerous extractives and salts which can only act as irritants to the kidney. The amount of fluid given to these patients should also be strictly limited, especially if there is any tendency to dropsy or to the development of hydremic plethora, and the use of diluents as diuretics should be restricted to the later stage of the malady, where, no doubt, much good may be derived by the administration of moderate quantities of fluid in order to promote the removal of débris from the renal tubules. In chronic renal disease, if complications such as uremia and dropsy are present, the dietetic treatment must be somewhat similar to that applicable to cases of acute nephritis, but owing to the long continued character of the disease, restrictions can not be carried to the same length as those suitable to the treatment of the acute malady. In chronic renal disease associated with dropsy, and particularly with increasing dropsy, a milk diet is also advisable, but in very chronic cases, in which the dropsy is moderate in amount and persistent for weeks or for months, a pure milk diet for prolonged periods. Such patients may be put on a milk diet of some three pints per diem, and if improvement sets in such a diet may be continued for three weeks, but it is probable that no useful purpose is served by maintaining such a diet for months, and a more solid diet with a minimum of common salt may often produce more beneficial results.

The improvement under a milk diet in chronic renal disease is often more spurious than real, the quantity of urine is seen to be increased, and the albuminuria to be apparently diminished; these are looked on as signs of improvement, when really all that has happened is that the diuretic action of the milk has led to an increase in the flow of urine, and thus the loss of albumin, although really the same, has undergone a percentage reduction. Attention should never be directed solely to the state of the urine, the general appearance of the patient and the body weight should be carefully observed. An increase in dropsy frequently shows itself by a rapid increase in the body weight. The milk diet is not recommended as a routine measure for long-continued periods in chronic renal disease.

28. **Diet in the Tropics.**—Simpson claims that the majority of individuals who persist in high living in the tropics pay for it sooner or later in some form of intestinal disorder, colitis, disease of the liver or nervous affection. Apart from the excessive quantity of meat and alcohol which is partaken of in the tropics, but which is being gradually diminished, the principal defect in the present-day diet of the tropics are the soups and the rather frequent recourse to long iced drinks. The latter are often taken between meals, and are an active factor in the production of constipation. Both lead to dyspepsia and not infrequently to dilatation of the stomach, which is one of the more common affections from which residents in the tropics suffer. Dilated stomach, in those who have returned from the tropics, is a more common cause of indisposition than is generally recognized. It is always well to examine for this condition in a patient with yellowish conjunctiva and furred tongue, and who complains of nausea, dyspepsia, languor and palpitation. In such a case it is probably combined with enlargement of the liver. The effects of overindulgence in alcohol are very marked in the tropics. Neurasthenia, depression and incapacity for mental work in the tropics not uncommonly owe their origin to a consumption of alcohol which would be without any corresponding effect in a more temperate climate.

Presse Médicale, Paris.

30 (XIV, No. 19.) Traitement des écrasements des doigts (crushed fingers). P. Reclus.
31 Tuberculosis in Dust-Producing Trades—Poussières et tuberculose. L. Landouzy.
32 *Sur une réaction colorante des acides gras (of fat acids). G. Jacobson.
33 La constipation des neurasthéniques traitée par l'électrothérapie. P. Hartenberg.
34 (No. 20.) L'osmose et la cryoscopie. Hallion.
35 *L'oralité dans l'enseignement (oral teaching). P. Bonnier.
36 (No. 21.) *De la séméiologie des lochies. C. Jeannin.
37 *Continuous Drainage of Stomach in Treatment of Acute Peritonitis.—Le drainage continu de l'estomac. P. Cavaillon.
38 (No. 22.) Esophagotomie interne esophagoscopique dans le traitement des rétrécissements cicatriciels de l'esophage. L. Sencert.
39 *Les indications qui doit remplir le régime alimentaire dans la lithiase biliaire. E. Dufourt.
40 (No. 23.) Des paresthésies pharyngées. M. Boulay.
41 *Méthode de réduction en position génu-cubitale de l'utérus rétroversé et rétrofléchi (knee elbow position for reduction of backward displacement). F. Jayle.
42 *La réaction des urines au bleu de methylène dans la fièvre typhoïde. E. Cousin and S. Costa. Id. Gandy. (Commenced in No. 21.)
43 (No. 24.) *Le treponema pallidum de Schaudinn. A. Sézary.
44 *Les gants de caoutchouc (rubber gloves). M. Chaput.
45 (No. 25.) *Les faux gastropathes (imaginary stomach affections). J. Déjérine and E. Gauckler.
46 L'herpes retro-pharyngien. G. Mahu.

32. **Staining Reaction of Fat Acids.**—Jacobson has found that fat acids have an affinity for a weak solution of some basic anilin dye while the neutral fats repel it. His studies were made principally with the stools of nurslings. The fat acids took the diluted Ziehl stain while the neutral fats were unaffected by it and the soaps were only very slightly stained.

35. **Oral Teaching.**—Bonnier trains teachers to throw out their voice and to let the resonance of the hall speak for them with the minimum of effort on their part, instead of straining to emit a volume of sound sufficient for all to hear. He also describes means to test the hearing capacity of pupils. Relative deafness can be detected with what he calls "paracoustics at a distance," that is, the application on the leg of a tuning fork with 100 vibrations. The sound ear does not hear its vibrations, but they are transmitted through the bones to the paracoustic ear. Perception of them indicates relative deafness. In case of an affection of the labyrinth, the blindfolded child deviates to that side in walking, or the pupil on that side is sometimes dilated or reacts sluggishly to light. If the child is told to shut his eyes while the lids are held from closing, the eyeballs turn upward with dissociated binocular movements, possibly turning toward the side affected. These signs can be sought by the teacher, and will prove that many children whose inattention has annoyed the teacher are in reality subject to some unsuspected ear affection.

36. **Clinical Significance of the Lochia.**—As streptococcus puerperal infection is generally regarded as more serious than others, bacteriologic examination of the lochia may prove important for the prognosis and also for treatment. A fecal-like odor suggests that the infection is due to colon bacilli; such cases are usually in very constipated women. If the lochial discharge is blackish or like coffee grounds this does not necessarily mean infection, and nothing should be allowed which might cause infection. Undue persistence of the lochia should suggest relics of the placenta; if not promptly removed they may lead to the formation of a chorioepithelioma.

37. **Continuous Drainage of the Stomach in Acute Peritonitis.**—Jaboulay's prosector at Lyons describes some experiences with prompt gastrostomy and rubber-tube drainage of the stomach in cases of acute peritonitis with a predominance of gastric symptoms. This technic, he asserts, is superior in its results to enterostomy and lavage of the stomach, and it is simpler and easier than the latter in these conditions. Systematic drainage of the stomach should not supplant drainage of the peritoneum, but it is liable to prove an invaluable adjuvant. Even in the gravest cases it may be indicated as a palliative measure, freeing the patients from their distressing dyspnea, vomiting and hiccough. In a case thus treated the patient was a young man with symptoms of ileus and acute peritonitis. The distended stomach protruded and there was almost constant vomiting and hiccough. About 5 cm. of the stomach was drawn out and turned down over one side of the laparotomy wound. A sound 1 cm. in diameter

was introduced and fastened with a thread to the abdomen and a rubber tube for siphonage attached. Gases escaped at once and as much as a quart of bile; the abdomen subsided and the relief was great. Two more quarts of greenish fluid flowed through the tube during the next twenty-four hours, when the patient could be fed through the mouth. During the half-hour or hour after eating the drain tube was closed with a clamp. The pulse grew slower and the patient was entirely cured in a week. In a case of appendiceal peritonitis the distension of the stomach, the cardiorespiratory symptoms, the disturbances in the intestinal circulation and all the other symptoms yielded rapidly to gastrostomy and continuous drainage of the stomach. This procedure is also indicated in cases of postoperative dilatation of the stomach. The distension of the stomach hampers the adjacent organs and is the cause of many of the symptoms. When the accumulated gases and fluids are evacuated by continuous drainage, stools and flatus pass the anus by the second day without artificial aid, and the cure is soon complete.

39. **Diet in Case of Tendency to Gallstones.**—Dufourt enumerates the conditions for success in warding off gallstone trouble as: 1, To avoid or to attenuate infection of the biliary passages; 2, to keep the composition of the bile normal; 3, to maintain a copious secretion of bile, and, 4, to insure its constant excretion. The meals should be frequent and light, with a lunch in the afternoon. The extractives have the property of promoting the passage of the bile into the duodenum and consequently a glass of consommé or something of the kind should be taken just before retiring. A little milk might be sipped if one wakes in the nght. By thus preventing the stomach being long empty at a time, the contraction of the gall bladder is promoted and the circulation of the bile kept active. In case of recurring colics, while waiting to decide the question of surgical interference, small amounts of milk, at short intervals, answer the indications and the result may decide against operative measures. The carbohydrates have little effect on the secretion of bile and should be reduced to the minimum. Fats favor its excretion and should be taken in the most digestible form, as cream, butter or yolks of eggs. Lard, oil and fat meats are too indigestible. Fruits and vegetables are advised. Condiments and stimulants should be avoided. The tolerance of the patient is the chief consideration in all these measures. The theoretical bases for them all are reviewed in detail.

41. **Reduction in Knee-Elbow Position of Retrodisplacement of Uterus.**—The thigh should be perpendicular to the resistant plane on which the patient kneels in the knee-elbow position. The vagina or rectum, or both, are then opened to admit air, which distends them and aids in mobilizing the uterus. Jayle gives eight illustrations showing the technic with which the uterus can then be swung into place with one or two fingers introduced into the vagina or rectum, the thumb braced against the pubic bone or buttocks. Pressure is applied gently five or six times, when the uterus generally slides into place.

42. **Methylene Blue Reaction of Typhoid Urine.**—This has been called the Russo test. Gandy and others write that the reaction is by no means a specific phenomenon. It occurs as an ordinary physical reaction in any urine.

43. **Schaudinn's Treponema Pallidum.**—Sézary's article reports positive findings, but is chiefly remarkable for the bibliography on the subject appended. It fills 16 inches of very fine type, printed solid, the oldest title being scarcely more than a year old; nearly all countries are represented. In his own research he was impressel with the great frequency of positive findings in contagious syphilitic lesions and the absence of treponema in ordinary lesions, also with its possible absence or at least its rarity with present methods of investigation in a certain number of specific manifestations. Schaudinn has never claimed that the *Treponema pallidum* is the causal agent of syphilis, but Metchnikoff and Fraenkel have not hesitated to affirm it. They base this conclusion on its almost constant presence in the primary and secondary accessible or inaccessible manifestations of syphilis, acquired and inherited. Another argument is that the *Treponema pallidum* has not been found in man or animals, well or sick, who are free from syphilitic infection. Positive findings confirm the existence of syphilis, but negative findings should not disprove it, as the parasite is not invariably encountered.

44. **Rubber Gloves.**—The special features of Chaput's gloves are the shortness and width of the fingers. He keeps always three sets on hand, one for aseptic work, one for septic and one for postmortem work. He boils each set in a separate box with perforated tray. The wrist of the glove is turned back an inch or so to take hold of the gloves in pulling them on. A strip of gauze dressing is wound around the forearm over the gauntlet and tucked in above the wrist. After the operation the gloves are washed on the hands and drawn off carefully by an assistant. They can be kept in boiled water, renewed every day, or in a weak solution of sodium borate which keeps indefinitely. During the operation the gloves can be washed on the hands.

45. **"False Gastropaths."**—The French speak often of false "urinaires," false "génitaux" and false "cardiaques," meaning persons who imagine they have some affection of the urinary or genital apparatus or of the heart. To this list Déjérine adds the false "gastropaths", the persons with purely psychic or nervous forms of stomach troubles. They range from simple dyspepsia in neurasthenics to phobias and pseudo-gastropathies. The stomach phobias are generally secondary to neurasthenia, but not always. Typical cases are described of this and of the false functional stomach disturbances, of which about 200 come under observation at the Salpétrière dispensary during the year, out of the 1,500 patients, while an average of 40 severer cases requiring hospital treatment are received. In many instances these false gastropathies are the direct result of therapeutics; the physician treats some transient digestive disturbance and this attracts attention to the stomach. In a later article the diagnosis and treatment are to be described.

Archiv f. Gynäkologie, Berlin.

47 (LXXVII, No. 2.) Ueber Missbildungen mit Störungen des Körper-Verschlusses (disturbances in the closure of the body). F. Kermauner.
48 Altersbestimmung menschlicher Embryonen und Föten auf Grund von Messungen und von Daten der Anamnese (determination of age of embryos and fetus). P. Michaelis.
49 Ueber die Histologie der Adenocarcinome im Uterus-Fundus. Offergeld.
50 Ueber Duplicitas tubæ Fallopii und ihre entwickelungsgeschichtliche Genese. H. Bab.
51 *Ueber schmerzlose Geburtswehen (painless labor). B. Wolff.
52 Ueber die interstitielle Tubar-Gravidität auf Grund von 3 selbst-beobachteten Fallen. A. Wagner.
53 "Intra-abdominelle Druck-Verhaltnisse" (conditions of pressure). K. Hörmann.

51. **Painless Labor.**—Wolff's patient was a healthy i-para of 28 who was delivered of a living child without labor pains. There was an entire lack of abdominal pressing. When the head was in the pelvic outlet all the uterine contractions ceased, and extraction was completed with forceps. He reviews the cases of painless labor found in the literature and discusses the cause.

Archiv f. klinische Chirurgie, Berlin.

Last indexed, page 622.

54 (LXXVIII, No. 1.) Zur Behandlung der Perityphlitis und ihrer Folgeerkrankungen (appendicitis and its consequences). O. Nordmann.
55 *Ueber eine neue Methode der Muskel-Transplantation. Hildebrandt.
56 Die Echinokokken-Krankheit in der Krim (in the Crimea). A. T. Kablukoff.
57 Multiple Echinokokken der Bauchhöhle (in abdominal cavity). Id.
58 Zur Kenntniss der sogen. Myositis ossificans traumatica. M. Strauss.
59 Die Function der Niere nach durchgemachtem Sectionsschnitt (functional activity after slitting the kidney). G. Ekehorn.
60 Blutige Behandlung der Quer-Fractur der Patella. P. Bockenheimer.
61 (No. 2.) *Bedeutung des Traumas für die Entstehung der Carcinome und Sarcome an der Hand des Materials der chirurgischen Klinik zu Jena. W. Röpke.
62 Zur Behandlung der Perityphlitis und deren Folgeerkrankungen. Nordman (Commenced in No. 1.)
63 Frequency of Congenital Hernial Sacs.—Ueber die Häufigkeit angeborener Bruchsäcke. T. Hansen.
64 *Lung Complications After Abdominal Operations.—Ueber Lungencomplicationen nach Bauchoperationen. E. Bibergeil (Körte's service, Berlin).
65 Die Epityphlitis in Wechselbeziehung zu ihren bakteriellen Erregern. E. Haim.
66 Erfahrungen über Adrenalin und Cocain-Adrenalin-Anästhesie. E. W. Sikemeier (Rotgans' clinic, Amsterdam).

55. **Transplantation of Muscles.**—Hildebrandt's experimental and clinical experience has demonstrated that it is possible to transplant a muscle when it has been almost entirely excluded from the circulation. It will heal in place and retain its functions under the condition that its nerve, that is, its connection with its center, and the blood vessels supplying this nerve, are retained intact. Most of the muscle fibers die when cut off from their circulation, but the power of regeneration is retained and the muscle grows again. The importance of sparing the nerve or nerves of the muscle is emphasized by this work. The pure ischemia of the muscle, induced by transplantation under the circumstance described, caused remarkable laxness, instead of the contraction noticed when the ischemia was induced by constriction of the muscle.

61. **Trauma in Connection with Cancer Formation.**—Röpke reviews the surgical material at Jena, stating that he found 19 out of 800 cases of carcinoma in which there was a possible causal connection with a single trauma, while the connection with the chronic trauma was evident in a large number. In 189 cases of sarcoma he found 28 cases in which chronic trauma and 19 in which a single trauma might possibly have played a part in the etiology. The connection between the trauma and the neoplasm was unmistakable in all these cases, and such connection might easily have existed in other cases in which the details were not so well known. Chronic trauma seems to play a larger part in the origin of carcinoma, while single trauma is apparently responsible in more cases of sarcoma. In 44 cases in Röpke's experience carcinoma was known in other members of the family. In 5 cases a sarcoma developed in the descendants. In only 2 of the cases of neoplasms developing after a single trauma was there a history of family antecedents.

64. **Lung Complications After Abdominal Operations.**—Bibergeil's statistics include 3,909 abdominal operations, with 283 cases of consecutive lung complications. Pneumonia was observed in 135, that is, in 3.5 per cent. of the total number of cases; embolism of the lungs in 12, that is, 3 per cent. (all fatal); infarcts in 9, 2 per cent., with one death; bronchitis in 83, that is, in 2.1 per cent.; abscess in the lungs in 12; pleuritis in 15, and empyema in 13. Study of the conditions suggests that lobular pneumonia after a laparotomy is due to autoinfection (aspiration during the anesthesia). The principal factor in the postoperative pulmonary affection is the effort of the patient to spare himself pain in the sutured abdominal wound. To keep it from hurting he breathes as lightly as possible and refrains from expectorating. Supplementary factors are the debilitated condition of the organism as a whole and the depressing influence of the operation. Lobar pneumonia is due to infection from pneumococci, either present as saprophytes or aspirated with mucus from the mouth. In regard to prophylaxis, Bibergeil reiterates the advisability of curing any respiratory affection before attempting an abdominal operation. The mouth and throat must be carefully cleaned, and lavage of the stomach should precede any operation on the digestive tract. The head of the patient should be turned on the side so that mucus accumulating in the mouth can flow out readily. The patient should be carefully protected against getting chilled. If the abdominal cavity or parts thereof are rinsed, the fluid should be heated to 113 or 122 F. The exposed parts of the abdomen must be protected against loss of heat by hot compresses. After the operation the position of the patient should be frequently changed, and he should be instructed to breathe deep, regardless of any pain in the wound. Constricting bandages should be avoided, and the patient should be made to sit up and get out of bed at the earliest possible moment. The action of the heart should be carefully supervised. At the same time, he adds, the most scrupulous application of all these measures does not positively insure against the development of a postoperative lung affection.

Deutsches Archiv f. klinische Medizin, Berlin.

Last indexed, page 919.

67 (LXXXVI, Nos. 1-3, Lichtheim Festschrift) **Beitrag zur kortikalen Lokalisation des Centrums für die konjugierten Seitwärtsbewegungen der Augen und des Kopfes** (side movements of eyes and head). Sahli.

68 *Ueber Früh- und Fehl-Diagnosen der akuten Perityphlitis. Korach.

69 *Ueber Sonden-Palpation der Bronchial-Drüsen bei gewissen leichtesten Formen der Tuberkulose (palpation of glands). E. Neisser.

70 *Ueber Hämaturie als Initial-Symptom primärer Nierentuberkulose (of kidneys). S. Askanazy.

71 *Zur Diagnose der Verlagerung und Verkümmerung einer Niere (displacement of kidney). Th. Cohn.

72 *Beriberi und Skorbut. M. Schubert.

73 *Zur Klinik der Cholelithiasis. R. Kuckein.

74 Zur Kenntnis der Barlow'schen Krankheit. G. Freund.

75 *Beitrag zur pathologischen Anatomie congenitalen Taubstummheit (deaf-mutism). W. Lindt.

76 Zur Lehre vom Ertrinkungstode (death from drowning). E. Margulies.

77 Entstehung und Wesen des Fötors bei Ozäna. O. Frese.

78 *Zur Kenntnis der Aneurysmen der basalen Hirnarterien und der bei den intrameningealen Apoplexien auftretenden Veränderungen der Cerebrospinalflüssigkeit. W. Rindfleisch.

79 *Beitrag zur Tuberkulose des Magens (of stomach). M. Alexander.

80 Untersuchungen ueber die in den Ergüssen und in der serösen Auskleidung der menschlichen Pleura- und Peritonealhöhle bei Entzündungen vorkommenden Zellen (cells in effusions). J. Lossen.

81 *Ueber familiäres Vorkommen plötzlicher Todesfälle bedingt durch Status lymphaticus (sudden death). E. Hedinger.

82 Ein unter dem Bilde eines operablen Rückenmarkstumors verlaufender Fall von Meningomyelitis chronica (simulating operable tumor in spinal cord). G. Joachim.

83 Zur Frage der Pathogenität der Flagellaten. J. Biland.

84 Ueber Blutvergiftungen durch Sesamöl (intoxication from probably adulterated sesame oil). E. Rautenberg.

85 Hypertrophische Leberzirrhose und Korsakowsche Psychose mit Ausgang in Heilung (cirrhosis of liver, etc.; recovery). A. Rosenfeld.

86 Zur Kenntnis des Resorptions-Vermögens der normalen und kranken Haut und der Vaginalschleimhaut für verschiedene Salbengrundlagen und für wässerige Lösungen (mit spezieller. Berücksichtigung der Jodkalisalbe) (absorption of salves, etc., by skin and vagina). Ch. Fauconnet.

87 Ueber Nephroparatyphus mit Schwefelwasserstoffbildung im Urin (sulphuretted hydrogen in urine). C. Klieneberger.

88 Ueber einen Fall von Myelitis transversa mit Muskelwogen und eigentümlichen Veränderungen der elektrischen Reaktion (anomalies in electric reactions). J. Frohmann.

68. **Mistaken Diagnoses of Appendicitis.**—In one of the 3 cases reported by Korach, diffuse miliary tuberculosis simulated the clinical picture of acute appendicitis. In another case the symptoms were due to a sarcoma in the mesentery which had perforated into the ileum. In the third patient nothing was found at the time of the operation or discovered later to explain the symptoms simulating acute appendicitis.

69. **Sound Palpation of Tuberculous Bronchial Glands.**—Neisser reports a second series of 34 patients who gave a decided positive reaction to tuberculin and had a number of mild subjective symptoms suggesting the possibility of tuberculosis, such as pains in the back and chest, "stitches" between the shoulders, and occasionally slight night sweats. The lungs seemed to be intact and actual tuberculosis has not developed in any of them, although under examination for two or three years or more. None of them had sanatorium treatment. He believes that the trouble in such cases is isolated tuberculous infection of the bronchial glands. It can be differentiated by the pain elicited by pressure or succussion on the spine, but a still more reliable and accurate measure is by palpation by means of a sound introduced into the esophagus. He uses a medium-sized pharyngeal catheter, the openings plugged with paraffin. About 10 cm. above the tip a long slit is made in the catheter. Another, very fine, stiff catheter, with a very small hole cut opposite the slit in the larger one, is slipped inside the large catheter, and a rubber condom drawn over both. A thread is tied around the whole above and another below the opening. Air is then blown into the catheters through an ear syringe; it inflates the rubber bag opposite the slit and hole in the catheters. The sound has been used on 250 individuals, the results showing that it causes no pain under ordinary conditions, while in the presence of a tuberculous process in the glands there is slight but characteristic painfulness when the rubber bag is inflated. The positive findings were almost invariably accompanied by pain on pressure of the spine. He remarks that if the term were not so hideous he would suggest calling this condition "tuberculosoid" to distinguish it from incipient tuberculosis. None of the patients to date have developed clinical tuberculosis. In his experience this condition was observed most frequently in families in which one member had typical tuberculosis.

70. **Hematuria as Initial Symptom of Primary Tuberculosis of the Kidneys.**—Askanazy has observed 5 cases in which profuse hematuria was the first symptom to call attention to a tuberculous process in the kidney. He has found a number of

such cases reported in the literature. The hematuria generally comes on suddenly in apparently healthy persons. In some cases it preceded the development of the clinical process by eight years, bq 13 years in Newman's case, and by 16 years in one of his own cases. The hematuria recurred several times in the interval in some cases. In others the typical symptoms followed close on the hematuria. As spontaneous healing of a tuberculous process in the kidneys is generally possible, an early diagnosis does not necessarily call for immediate nephrectomy. Hygienic-dietetic measures and internal medication may arrest the process. The initial hematuria is thus of the greatest importance, as it allows an early and presumptive diagnosis and prompt treatment. He remarks in conclusion that in tuberculous affections the permanent integrity of the sound mate can never be guaranteed, so that nephrectomy should not be done without due consideration.

71. **Diagnosis of Displacement and Deformity of One Kidney.**—Cohn describes the various diagnostic means by whose aid he was able to differentiate a rudimentary dystopic kidney with obstructed ureter in a ii-para of 31, and a displaced and abnormally small kidney in a nullipara of 27.

72. **Beriberi and Scorbutus.**—Schubert argues that we must distinguish between sea scorbutus and land scorbutus and Barlow's disease. Sea scorbutus is a chronic meat poisoning, land scorbutus is an infectious disease. True tropical beriberi is an infectious disease, while the affection described under this name in England and elsewhere is a polyneuritis of unknown origin, possibly due to arsenic intoxication. Ship beriberi, he states, is an intoxication with rotten salt meat.

73. **Clinical Study of Cholelithiasis.**—Kuckein analyzes the primary symptoms and other features in 174 cases of gallstones. One patient had a serious recurrence after operative treatment. Kehr does not admit the possibility of recurrence after thorough operative treatment, but Körte has observed 6 cases of such recurrence among 313 patients on whom he had operated.

75. **Pathologic Anatomy of Congenital Deafmutism.**—Lindt had oportunity to examine the petrous portion of the temporal bone in a young woman who had been a deaf mute from infancy. The external and middle ear was normal, but both labyrinths showed anomalies evidently of embryonal origin, atrophy of the spiral ganglion, cochlear nerve, and ramus sacculars, with entire absence of the papilla basilaris on both sides, and with marked aplasia of the Corti organ and other findings similar to those of the 10 similar cases that have been examined histologically. The article is illustrated.

78. **Aneurism of the Basilar Arteries.**—Rindfleisch describes 3 cases and expatiates on the valuable information that may be obtained from study of the cerebrospinal fluid in various meningeal affections. The findings should be weighed with all the accompanying symptoms, but when this is done they may throw unexpected light into obscure places. The tint of the fluid is instructive. In case of hemorrhage into the subarachnoid space the red corpuscles rapidly disappear and are all gone by the end of a few weeks. The hemoglobin imparts a reddish-yellow or red tint to the fluid, which gradually turns brown in the course of a week or so. Hemoglobin can still be detected in the fluid at this stage, but later the findings are negative, the hemoglobin having become transformed, he states, into a brown derivate, probably hematoidin. The urine of the patient generally contains urobilin at this stage. Finally the hemoglobin entirely vanishes and the fluid becomes limpid once more. A large part of the blood pigment is deposited in the arachnoid as hemosiderin. He calls the tinting of the fluid "xanthochromia." Diffuse distribution of the blood throughout the subarachnoid space causes several characteristic symptoms, among them the signs of congestion in the fundus of the eye, explainable by an infarct in the sheath of the optic nerve. This "blood tamponing" of the sheath of the optic nerve was evident at the autopsy in his case. The diffusion of the blood through the subarachnoid space was the cause of the spinal irritation evidenced by the stiffness of the back and neck, the local and radiating pains, the Kernig sign, etc. The vanishing of the knee jerks was probably the result of the stretching of the roots. In one of the cases described the spinal symptoms persisted for a long time and, in conjunction with oculomotor paralysis, aroused the suspicion of a diffuse chronic meningeal affection of an inflammatory or neoplastic nature. The symptoms were of a general cerebral nature, accompanied by focal symptoms pointing to the base of the brain, and diffuse spinal symptoms. The lesion proved to be an aneurism of the right posterior communicating artery.

79. **Tuberculosis of Stomach.**—Alexander describes a case in which the symptoms suggested cancer of the pylorus. The patient was a man of 40, who weighed 152 pounds. After an attack of "influenza" nine months before he began to experience pain on pressure and discomfort in the stomach region about 45 minutes after eating, especially after solid food, with eructations but no vomiting. There was constipation and much weakness. In the fasting stomach, after a test supper, a coffee-dregs residue was found containing lactic acid; traces of blood were revealed by the guaiac test, with lactic acid bacilli and fungi. The pylorus was found encircled with a flat granular ulceration. After the resection the patient had pneumonia, and died on the eighteenth day. No tubercle bacilli were found in the stomach lesion nor in the sputum, but the presence of giant cells in the pyloric tumor indicated a tuberculous origin. The process was isolated, as no other signs of tuberculosis could be detected elsewhere. This makes the fourth case of the kind on record. The patients in each instance had been operated on under the diagnosis of cancer.

81. **Lymphatism and Sudden Deaths.**—Hedinger reports the sudden death of five children in one family before they reached the age of 6. The autopsy of the last child, a girl nearly 6, showed marked hyperplasia of the lymphatic system, including the thymus, hyperplasia of Peyer's patches and of the solitary follicles in the digestive tract, enlarged tonsils and spleen and eccentric hypertrophy of the left ventricle. The little girl had had a sudden brief attack of loss of consciousness and extreme cyanosis six months before the fatal repetition of the same symptoms. The parents are closely related, and the father is an alcoholic. Other children in the family seem to be growing up in health, with less tendency to the lymphatic diathesis. Hedinger quotes from the literature, showing that sudden death in cases of hypertrophy of the thymus was recorded as early as 1614 by F. Plater, in respect to three children in one family. [An editorial in THE JOURNAL for February 10 discussed this subject, and Hedinger has recently published the details of the sudden death of 15 newborn infants with hypertrophic thymus. The *Presse Médicale* for February 3 describes the recent acquittal by the French courts of a woman named Weber who was accused of having caused the deaths of her three children and five of her nephews. The experts, Brouardel and Thoinot, reported that they had not been able to discover any evidences of poison nor of strangulation. Their opinion was that the eight deaths were due to natural causes. This opinion was sustained by the appearance of Hedinger's article about the same time calling attention to the occurence of series of such deaths in certain families. In Perrin's case, cited by Hedinger, the nine sons died between the ages of 3 and 9, after a few days of slight depression, with sudden coma and death in less than an hour. The two girls in this family are alive and in good health to date. Morquio has observed a similar case at Montevideo. Four boys in a family presented symptoms suggesting the Stokes-Adams' syndrome at about the fourth year, and died suddenly between the ages of 8 and 10. A fifth boy is now showing the same symptoms, but the girls in this family are healthy.—ED.]

Gazzeta degli Ospedali, Milan.

Last indexed, page 1326.

89 (XXVI, No. 152.) Trattamento chirurgico di alcune deformazioni congenite della porzione terminale del tubo digerente (malformations of rectum and anus). G. Miomi.
90 (No. 154.) *Il Riflusso nella gastroenterostomia ad Y del Roux (reflux). A. Ferrari.
91 Terapia dell' igroma della borsa prerotulea. G. Stella.
92 L'emoantitossina nella gravide e nelle puerpere. G. de Paoli.
93 *Studio delle affezioni polmonari di origine gastrointestinale. E. Gugnoni.
94 (XXVII, No. 1.) Le misure nella tecnica radiotherapica. A. G. Gramegna.
95 (No. 2.) L'elettroterapia nel campo medico. G. Viana.

96 (No. 3.) *Complicazioni nervose dell'ileotifo nell' infanzia. G. B. Allaria.
97 *Significato clinico degli edemi. T. Silvestri.
98 *Influenza dell' anemia adrenalinica sui decorso delle infezioni locali (influence on course of local infections). D. Maragliano.
99 Ricerche sperimentali sulla sifilide. F. Simonelli and I. Bandi.

90. **Reflux After Gastroenterostomy.**—Ferrari has observed reflux in 2 out of 11 cases after a gastroenterostomy, according to Roux's Y technic. He assumes that there must have been antiperistalsis as the amount of fluid in the stomach was so large. No method of gastroenterostomy absolutely prevents reflux as antiperistalsis is liable with all, and as the new pylorus has no sphincter to close and to prevent backward passage of the enteric juices into the stomach. The reflux ceased in his cases after lavage of the stomach, done twice, and setting the patient upright in bed. This changed the position of the loop of intestine from horizontal to vertical, which he thinks aided in suppressing the reflux and vomiting.

93. **Pulmonary Affection of Gastrointestinal Origin.**—Gugnoni describes the case of a healthy young soldier who had been indisposed for several days with slight headache, loss of appetite and constipation, with fever. He was given castor oil and in a day or so the fever subsided but the patient still felt sick and the tongue was much coated. He remained in bed and suddenly the fever lighted up again, this time accompanied by cough and expectoration. A focus of subcrepitant râles was discovered, but no bronchial souffle, and merely a slight dullness in the middle and lower lobe of one lung. Gugnoni reviews some similar cases on record in which a gastrointestinal affection became suddenly complicated with lung symptoms; the majority were in children. On the basis of gastrointestinal origin of the lung trouble he treated it exclusively with calomel and an intestinal disinfectant, with a strict milk diet and irrigation of the intestine with a 1 per 1,000 solution of salicylic acid. In less than four days the patient was entirely cured.

96. **Nervous Complications of Typhoid in Children.**—Allaria reports 2 cases of meningitic symptoms, aphasia and right spastic hemiplegia following typhoid in children of 6. Both soon recovered completely. In a third case, in a child of 8, bronchopneumonia followed typhoid, and this was followed by fatal meningo-typhoid. In the fourth case the typhoid and pneumonia were followed by tetany and recovery. The meningitic symptoms improved in the second case after lumbar puncture, but this did not prevent the focus symptoms from developing. Allaria's experience confirms the observation of others that when an epidemic of cerebrospinal meningitis is prevailing, typhoid in children is more liable to assume the meningitic type.

97. **Clinical Significance of Edema.**—Silvestri does not regard edema as merely a symptom. He accepts it as a defensive reaction on the part of the organism. The toxins are washed out by the edema, and in this Nature points the way for us to follow. The reaction may be out of all proportion to the inciting cause, and may need restriction. By evacuating the ascitic acid fluid and by intestinal catharsis we are able to remove a large quantity of toxins which Nature has conveniently collected for us in this form.

98. **Influence of Adrenalin on Course of Local Infections.**—Maragliano describes experiments on dogs and rabbits which demonstrated that injection of adrenalin with a culture of moderately virulent staphylococci enhanced the virulence of the germs. When injected in or near a phlegmon or other local inflammatory process, the latter was unmistakably aggravated. He used a 1 to 2,000 solution. This is stronger than used on man, and the drainage of local processes in the clinic also acts against this aggravating tendency of the adrenalin. In a dental case the injection of 1 c.c. of a solution of cocain and adrenalin for perialveolitis was followed by necrosis in the soft parts that had been injected, and fatal pyemia followed. Observation of a few similar cases, supplemented by the results of experimental research, have convinced him that the use of adrenalin should be limited to sound tissues, and that its effect on diseased or inflamed tissues is liable to be disastrous.

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100 (XXII, No. 1.) Studio degli adamantinoma del mascellare inferiore (of lower jaw). F. Ferrero.
101 Esiste nel sangue dei dementi precoci una forma speciale di globulo rosso (red corpuscles in insane)? G. Muggia.
102 (No. 2.) *Action of Radium on Rabic Virus.—Sull'azione del radio sul virus rabbico. A. Calabrese.
103 (No. 3.) Sulla tubercolosi polmonare. Augusto Murri (Bologna). (Commenced in No. 1.)
104 *Ancora sul fenomeno Cardarelli-Oliver e sui segni di aderenza dell' aneurisma aortico con i tubi aeri (adherence to air passages). S. Pansini. (Commenced in No. 1.)
105 (No. 4.) La reazione ammoniacale di Ehrlich. E. U. Fittipaldi.
106 *Study of Fever.—Una questione fondamentale per la dottrina della febbre. L. Giuffré.
107 (No. 5.) *Contributo alla cura del prolasso rettale (rectal prolapse). G. Serafini (Turin).
108 *Le enterorragie occulte nell' infezione tifica. D. Romani.
109 *Diazo-reazione e indicanuria negli alienati di mente (in mental affections). O. Pini and G. Benini.
110 Sull' azione dell'adrenalina nel morbo maculoso di Werlhof (success of adrenalin in case of purpura hemorrhagica). A. Cianni.

102. **Action of Radium on Virus of Rabies.**—Calabrese reviews the work done by Tizzoni and Rehns in this line—recently summarized in these columns—and describes extensive research of his own. His results were negative.

104. **Tracheal Tugging, Etc., in Case of Aneurism.**—Pansini gives an illustrated report of 3 cases of aneurism of the thoracic aorta and 1 of innominate artery, with the postmortem findings. He discusses the cases from the standpoint of the diagnosis of adherence to the air passages, especially with reference to tracheal tugging and to the imminence of perforation into the air passages. In conclusion he remarks that any indications of compression of the air passages should suggest the possibility of an aneurism, and that every aneurism should be investigated for signs of adhesion to the air passages. When the signs suggest this, the patients should be supervised, kept quiet and coughing should be prevented at any cost. In case of hemoptysis the patients must stay in bed, be kept on a light diet and under the influence of morphin. By these means the physician may be able to ward off the fatal termination for days and weeks and, in any event, to make a correct diagnosis.

106. **Theory in Regard to Fever.**—Giuffré discusses whether or not the regulation of heat, its production, absorption and excretion, occur alike in health and in febrile conditions. He argues that the regulation of the heat is not the function of organs specially devoted to this task. It is a function secondary to the function of nutrition, and occurs independently of the nerves to some extent, the rest is exercised by all the nerves, not by any special thermoregulating center.

107. **Rectal Prolapse.**—Serafini reviews the history of treatment of severe rectal prolapse and reports a couple of cases in which he operated. His first patient was a child of 6, with long persisting, rebellious prolapse. Typical resection by Mikulicz' technic was followed by early recurrence of the prolapse and death in collapse nine days after the operation. The autopsy showed general ptosis of the viscera, relaxation of the tissues and abnormal length of the parts suspending the sigmoid flexure and descending colon. Death from exhaustion followed in some cases in Mikulicz' own experience with the operation. The second patient was a young man and the prolapse was less extensive. He was treated with ligature according to Weinlechner's technic and the results were eminently satisfactory, surpassing all expectations. The cure was rapid, complete and lasting.

108. **Invisible Hemorrhages in Typhoid.**—Romani relates in detail the results of hundreds of examinations of the stools in 50 cases of typhoid, with application of the Weber or Rossel test, for occult hemorrhage. His experience demonstrates that intestinal hemorrhage in the course of typhoid fever is always preceded by a few days during which traces of blood can be detected in the feces by these delicate tests. If symptoms of peritonitis develop during the course of typhoid fever, the presence of invisible traces of blood in the stools is a sign that the peritonitis is due to perforation rather than to propagation. Administration of a purgative to a constipated typhoid patient may be followed by the appearance of traces of blood in the stools, which may prove to be the prelude to

extensive intestinal hemorrhage. Systematic examination for traces of blood in typhoid stools may furnish a criterion for the progress of healing. The presence of blood indicates that the ulcerative process is not entirely healed. Serafini found traces of blood sometimes in the milder cases, while some of the severest ran their course without the appearance of blood in the stools. If the feces had been in contact with a metal vessel or tube, the typical reaction to the Weber test occurred at once, but it soon subsided, the feces later not showing the typical findings unless in case of the presence of blood. This phenomenon is due to the presence of iron. It causes the typical reaction at once, but as the iron then unites with the sulphuretted hydrogen in the feces to form an insoluble compound, the typical reaction to the test then vanishes as the iron is thus taken up. Experimental addition of traces of iron always induced this phenomenon. The Weber aloin test is more sensitive than the Rossel guaiac technic. The Weber test was found positive at a dilution of blood, 1 to 13,000, even when the spectroscope gave negative findings. The findings were positive in 16 out of his 50 patients. In 4 only for one day; in 2 on two days; in 3 on three days, and in the others from four to fifteen times. In 7 patients with negative findings the disease was exceptionally severe, in 3 moderate, and in 4 very mild. The traces of blood appeared in the stools 48 hours before an extensive hemorrhage in 1 case, and four days before in 3 other cases, including 1 in which the patient, a robust young man, was apparently convalescing at the nineteenth day of a very mild typhoid fever. Positive findings in regard to invisible blood in the stools were encountered generally in the third or fourth week, never in the first, but 7 times in the second week, 20 times in the third, 18 times in the fourth, 8 times in the fifth, and once in the seventh week. He ascribes the invisible hemorrhage to the dropping off of the scab. (For technic of tests see THE JOURNAL, page 1566, vol. xli, 1903.) z

109. **Diazo Reaction and Indicanuria in Mental Affections.**—The findings were negative in the majority of the large number of tests reported. Both the diazo reaction and the indicanuria are signs of profound organic intoxication, Pini remarks, and occur, generally speaking, in cases in which such might be expected. The article gives a historical summary of the subject, with bibliography.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

SCIENTIFIC MEMOIRS BY OFFICERS OF THE MEDICAL AND SANITARY DEPARTMENTS of the Government of India. Issued under the Authority of the Government of India by the Sanitary Commissioner with the Government of India, Simla. Calcutta: Office of the Superintendent of Government Printing, India, 1906. No. 22. Mediterranean Fever in India; Isolation of the Micrococcus Melitensis. By Capt. G. Lamb, M.D., I.M.S., and Assistant Surgeon M. Kesava Pai, M.B., C.M. Price, 10 annas or 1s.

MATERIA MEDICA AND THERAPEUTICS. An Introduction to the Rational Treatment of Disease by J. M. Bruce, M.A., LL.D., Fellow of the Royal College of Physicians of London, etc. New and Enlarged Edition. Revised Throughout, and Containing the Indian and Colonial Addendum to the British Pharmacopeia. Cloth. Pp. 632. Price, $1.75 net. Chicago: W. T. Keener & Co., 1906.

MEDIZINAL-BERICHTE Ueber die Deutschen Schutzgebiete Deutsch-Ostafrika, Kamerun, Togo, Deutsch-Südwestafrika, Neu-Guinea, Karolinen, Marshall-Inseln u. Samoa für das Jahr 1903-04 Herausgegeben von der Kolonial-Abteilung des Auswärtigen Amts. Cloth. Pp. 303. Price, 7.50 marks. Berlin: Ernst Siegfried Mittler und Sohn, 1905.

OUTLINES OF APPLIED ANATOMY, with Special Reference to Surface Landmarks. By R. J. A. Berry, M.D., F.R.C.S.E., F.R.S.E., Professor of Anatomy in the University of Melbourne, with forty-six illustrations. Cloth. Pp. 244. Price, $2.50. Philadelphia: J. B. Lippincott Company, 1906.

A MANUAL OF MEDICAL TREATMENT OR CLINICAL THERAPEUTICS. By I. B. Yeo, M.D., F.R.C.P., Emeritus Professor of Medicine in King's College, London. Fourteenth Edition. Twenty-second Thousand. Vol. I-II. Cloth. Pp. 696 and 818. Price, $5.00 net. Chicago: W. T. Keener & Co., 1906.

ENIGMAS OF PSYCHICAL RESEARCH. By J. H. Hyslop, Ph.D., LL.D., Formerly Professor of Ethics and Logic in Columbia University, Author of "Science and a Future Life," etc. Cloth. Pp. 425. Price, $1.50 net. Boston, Mass.: Herbert B. Turner & Co., 1906.

ST. LUKE'S HOME AND HOSPITAL in the City of Utica, for the year ending Oct. 1, 1904, with the names of officers for the ensuing Year. Paper. Pp. 40. Utica, N. Y.: L. C. Childs & Son.

PHYSIOLOGY OF THE NERVOUS SYSTEM. By J. P. Morat. Authorized English Edition. Translated and Edited by H. W. Syers, M.A., M.D., Physician to the Great Northern Central Hospital. With 263 Illustrations. Cloth. Pp. 680. Price, $7.50 net. Chicago: W. T. Keener & Co., 1906.

TRANSACTIONS OF THE AMERICAN MICROSCOPICAL SOCIETY, Edited by the Secretary, Twenty-seventh Annual Meeting, held at Buffalo, New York, August 23-25, 1904. Vol. XXVI. Paper. Pp. 304. Lancaster, Pa.: The New Era Printing Company, 1905.

REPORT OF THE MINISTER OF AGRICULTURE For the Dominion of Canada For the Year Ended Oct. 31, 1905. Paper. Pp. 61. Printed by Order of Parliament. Ottawa: Printed by S. E. Dawson, Printer to the King's Most Excellent Majesty, 1906.

TWENTY-NINTH ANNUAL REPORT OF THE BOARD OF HEALTH OF THE STATE OF NEW JERSEY, 1905, and Annual Report of the Bureau of Vital Statistics. Cloth. Pp. 396. Trenton, N. J.: The John L. Murphy Publishing Co., 1906.

HAND-BOOK OF GASOLINE AUTOMOBILES for the Information of the Public Who Are Interested in Their Manufacture and Use. 1906. Paper. Pp. 141. Price 10 cents. New York: Association of Licensed Automobile Manufacturers.

TRANSACTIONS OF THE NATIONAL ASSOCIATION OF UNITED STATES PENSION EXAMINING SURGEONS. Fourth Annual Meeting, Chicago, Ill., July 7-8, 1905. Vol. III. Cloth. Pp. 93. Rochester, N. Y.: Published by the Association, 1905.

FRACTURE DU POIGNET EN SENS INVERSE, Ou Fracture Par Hyperflexion De L'Extrémité Inférieure du Radius. Par. Fr. Guermonprez (Avec 12 figures dans le texte). Paper. Pp. 50. Paris: Jules Rousset, 1906.

FORTIETH ANNUAL REPORT OF ST. FRANCIS HOSPITAL, New York, under the Charge of the Sisters of the Poor of St. Francis, for the year 1905. Paper. Pp. 16.

MANHATTAN EYE, EAR AND THROAT HOSPITAL, Thirty-sixth Annual Report of the Board of Directors, New York. Paper. Pp. 29.

THIRTEENTH ANNUAL REPORT AND BY-LAWS OF THE THRALL HOSPITAL, Grove Street, Middletown, N. Y., 1905. Paper. Pp. 41.

THIRTY-NINTH ANNUAL REPORT Saint Luke's Hospital, St. Louis, 1905. Paper. Pp. 88.

NEW PATENTS.

Recent patents of interest to physicians:

815510. Inhaler. Raymond C. Coburn, Upper Sandusky, Ohio.
815682. Truss. Alfred C. Cooke, Rockyhill, Conn.
815411. Atomizer or nebulizer. Frank C. Dorment, Kalamazoo, Mich.
815426. Bandage. Virginia E. Hardee, Beaumont, Texas.
815715. Invalid bed, cot, and table. Anton Kruger, Allegheny, Pa.
815608. Pellet-coating machine. Joseph Mangin, Sigourney, Iowa.
815366. Water-bag or bottle. Thomas W. Miller, Akron, Ohio.
815368. Crutch. Alonzo C. Morse, Shelby, Ohio.
815859. Retinoscope. August L. Palis, Upland, Cal.
815863. Variable-voltage electric transformer for cautery and diagnostic work. Earl H. Rollinson, Albany, N. Y.
815761. Glycerin still. Charles Sudre, Paris, France.
815878. Fourchette. Hippolyte Texier, Watchung, N. J.
815886. Affixing plastics. Edward J. Winslow, Chicago.
816547. Making medicines. Robert Gross, Rastenberg, Thuringia, Germany.
816026. Surgical clip. Albert J. Meier, Kirkwood, Mo.
816365. Vibrator for massage treatment. William Olson, Mount Vernon, N. Y.
816503. Stopper for hot-water bags. Geo. H. F. Schrader, Greenburg, N. Y.
816506. Massage instrument. Wm. G. Shelton, St. Louis.
816048. Invalid bed. John W. Summers, Mattoon, Ill.
816959. Sterilizing and antiseptic case with stand for surgical instruments. Pasquale Briganti, New York.
817046. Oculometroscope. Harry I. Cowan and B. Abel, Woburn, Mass.
816564. Hand-gear vibratory massaging machine. Jay V. Daniels, London, England.
817054. Syringe. Daniel G. Gay, Freewater, Oregon.
816656. Atomizer. Isaac Q. Gurnee, Butler, N. J.
816866. Artificial limb. Hjalmar Leonard, Chicago.
816867. Surgical truss. James Leverone, New London, Conn.
816743. Ammonia vaporizer. John Robson, Wallsend, England.
816745. Vehicle for cripples. Frank Rowley, Battle Creek, Mich.
816746. Medical appliance. Flora S. Russell, Boston.
816748. Massage appliance. Edward S. Saighman, Chicago.
816888. Suspensory. John R. Sommerville, Washington, D. C.
816697. Combined lift and bed-support for invalids. Henry Williams, Finchley Road, County of Middlesex, England.
817622. Apparatus for filling capsules. C. C. Boykin, Norfolk, Va.
817159. Making dialkylbarbituric acids. Max Conrad, Aschaffenburg, Germany.
817231. Coin-controlled atomizer. Pierce A. Dunn, Green Island, N. Y.
817166. Disinfecting compound. Joseph W. England, Philadelphia.
817703. Apparatus for moving invalids. Louisa Garaghty, Chester, Pa.
817708. Inhaler. George F. Hartz, Durant, Iowa.
817495. Pasteurizer. Charles H. Loew, Lakewood, Ohio.
817340. Artificial limb. Rudolf Rosenkranz, Pittsburg, Pa.
817600. Truss for hernia. Wm. H. Washburn, Portland, Ore.
817288. Medical appliance. James P. Whedon, Chicago.
817951. Invalid bed attachment. Irwin Baker, Latty, Ohio.
817351. Invalid robe. Emma Clark, New Orleans.
817852. Pill and tablet counting machine. Seward A. Haseltine, Springfield, Mo.
817973. Uterine dilator. Caspar F. Hausmann, St. Gall, Switzerland.
817785. Joint for artificial limbs. Charles E. Kritsch, Washington, D. C.
818123. Mask for administering anesthetics. Albert Rousseau, Bordeaux, France.
819946. Device for facilitating the removal of bandages. Cad. P. Williams, Sanders, Ky.